Radio & Television Pre-Construction Survey at the Hawkesdale Wind Farm

Hawkesdale Asset Pty Ltd.

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Task and objective:
This report presents the results for Radio & Television ("TV") signal strength survey (pre-construction) at the Hawkesdale Wind Farm.

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Reference to part of this report which may lead to misinterpretation is not permissible.

Rev. No.	Date	Reason for Issue	Prepared by	Verified by	Approved by
A	24 December 2020	First issue	Juan Becerra	Kevin Bleibler	Kevin Bleibler
B	18 January 2021	Detail added to the section 1 and section 2.1 of the report.	Juan Becerra	Kevin Bleibler	Kevin Bleibler
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D	21 April 2021	Customer name changed according to the novation agreement 10265616-AUME-NA-01-A.	Juan Becerra	Kevin Bleibler	Kevin Bleibler

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Appendix

1 SUMMARY SURVEY

Hawkesdale Asset Pty Ltd. (the "Customer") as trustee for Hawkesdale Asset Trust (HAPL), a wholly owned subsidiary of Global Power Generation Australia Pty Ltd (GPGA), retained DNV Australia ("DNV") to complete a radio and TV pre-construction survey of signal strength ("the Survey") at the Hawkesdale Wind Farm ("Hawkesdale" or "the Wind Farm") in West Victoria, Australia ("the Project").

This report documents the results of a pre-construction radio and TV Survey at the Hawkesdale Wind Farm to satisfy the requirements of Condition 44 of Planning Permit No 20060221-A [11]. The results presented here are intended to provide a baseline for future comparison with the results of a post-construction radio and TV signal strength survey, and for reference in the event that any complaints of degraded radio or TV reception are received after the Wind Farm is operational.

For the purposes of this Survey, DNV measured the signal strength of commercial FM radio stations and commercial and national TV broadcasting channels (with the parameters: Power, MER, and BER) at 60 selected dwellings, as detailed in the Survey test plan [10] and Section of this report, in the period from 16 November 2020 to 25 November 2020. Of those 60 dwellings, 50 were located within 5 km of the nearest proposed wind turbine location. The remaining 10 dwellings were located more than 5 km from the nearest proposed wind turbine.

The Customer previously retained DNV for an EMI assessment [1]. Information presented in the EMI assessment, including but not limited to general information, data and coordinates will be used in this report.

In April 2021, the Customer provided additional coordinates of existing dwellings (ID:171 & 172) [12]. DNV reviewed the dwellings. They are located in the vicinity of measurement points performed during the measurement campaign; hence, the representative measurements still valid for the additional dwellings.

2 TEST SITE

2.1 Permit Condition

With regard to the TV/radio impact assessment, the relevant permit conditions [11] are below:

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

44. *A pre-construction survey must be carried out to the satisfaction of the Minister of Planning to determine television and radio reception strength at selected locations up to 5 kms from all wind turbines. The location of such monitoring is to be determined by an independent television and radio monitoring specialist appointed by the operator under this permit.*

45. *If, following commencement of the operation of the wind energy facility, a complaint is received regarding the wind energy facility having an adverse effect on television or radio reception at the any dwelling in the area which existed at the date of the pre-construction survey, a post - construction survey must be carried out at the dwelling*

46. *if the post-construction survey establishes any increase in interference to reception as a result of the wind energy facility operations, the wind energy facility operator must undertake reasonable and feasible measures to mitigate the interference and return the affected reception to pre-construction quality at the cost of the wind energy facility operator and to the satisfaction of the Minister for Planning.*

2.2 Test Site and Selected dwellings

The dwellings in the vicinity of the Wind Farm are shown in Figure 2-1. In the test plan [10] 60 dwellings were selected for the Survey (see Figure 2-2).

Figure 2-1 Hawkesdale Wind Farm with surrounding dwellings

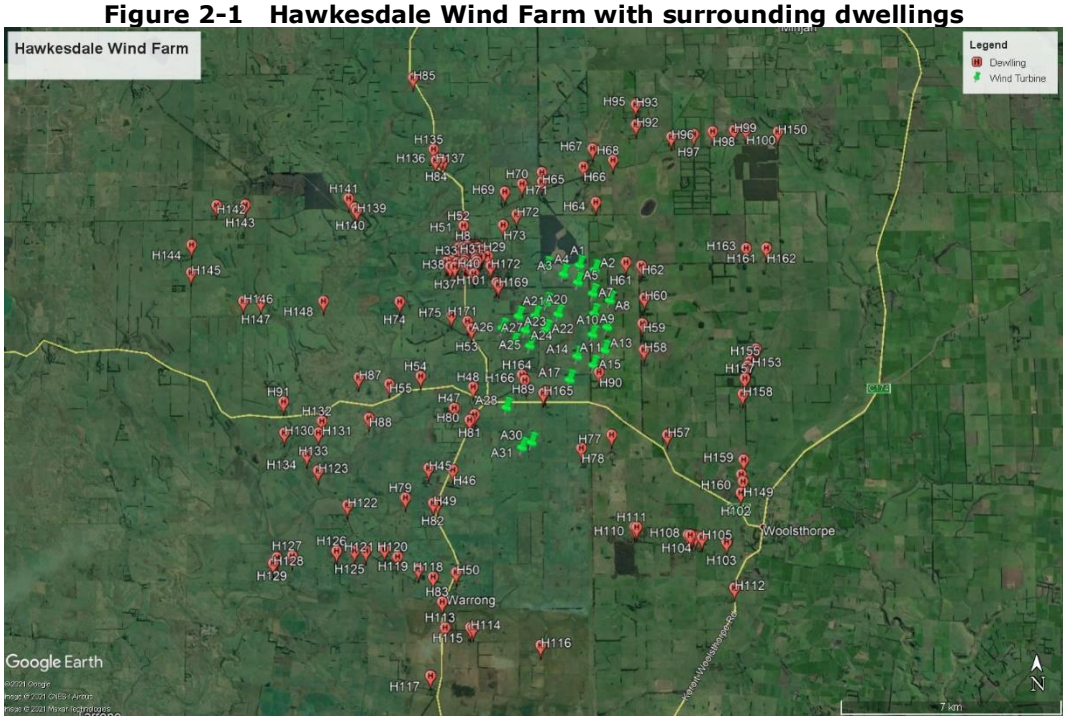
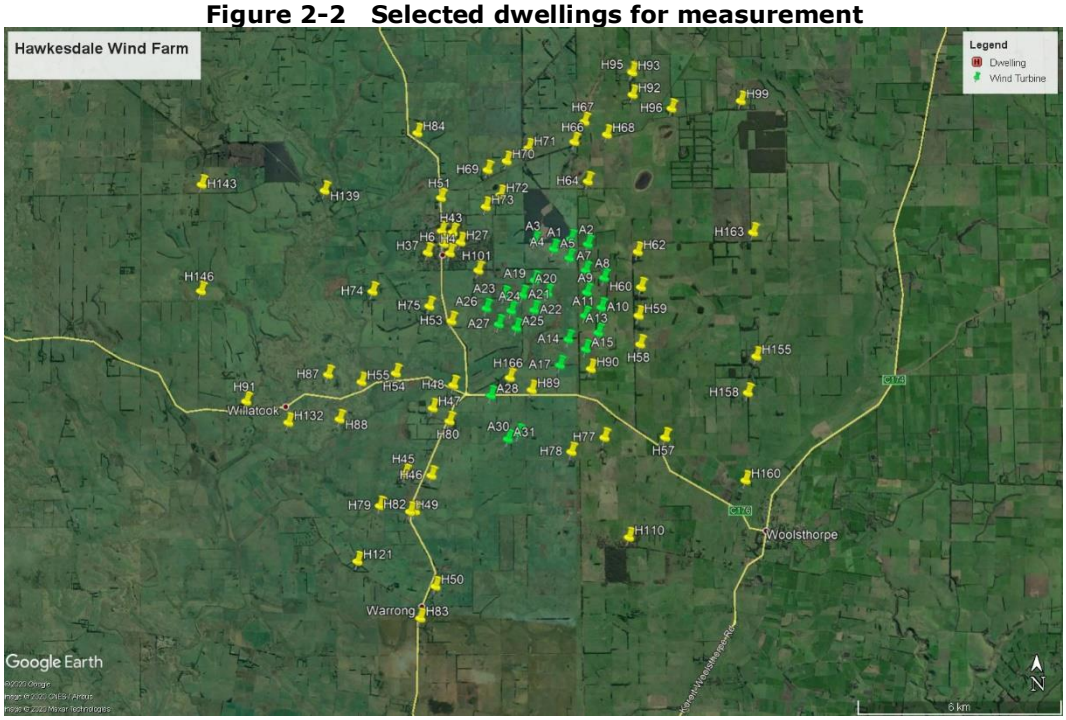


Figure 2-2 Selected dwellings for measurement



Each measurement can be considered representative for different dwellings (see Table 2-1).

Table 2-1 Dwellings covered by measurements

Measurement Name	Easting [m]	Northing [m]	Dwellings covered
M4	615931	615931	H4, H7, H40
M6	615758	615758	H5, H6, H9, H10, H13, H14, H41
M19	615696	615696	H1, H2, H3, H8, H11, H12, H15, H16, H17, H19, H20, H21, H22, H26, H39, H168
M27	616255	616255	H27, H28, H30, H31, H167, H18, H23, H24, H25, H29, H44, H127
M37	615269	615269	H32, H33, H34, H35, H36, H37, H38
M43	616024	616024	H42, H43
M45	614522	614522	H45
M46	615305	615305	H46
M47	615365	615365	H47
M48	615985	615985	H48
M49	614661	614661	H49, H82
M50	615388	615388	H50
M51	615686	615686	H51, H52
M53	615956	615956	H53. H171
M54	614278	614278	H54
M55	613253	613253	H55
M57	622253	622253	H57
M58	621562	621562	H58
M59	621532	621532	H59
M60	621614	621614	H60
M62	621538	621538	H61, H62
M64	620085	620085	H64
M66	619699	619699	H66
M67	620013	620013	H67
M68	620679	620679	H68
M69	617091	617091	H69
M70	617664	617664	H70

Measurement Name	Easting [m]	Northing [m]	Dwellings covered
M71	618321	618321	H65, H71
M72	617467	617467	H72
M73	617023	617023	H73
M74	613607	613607	H74
M75	615301	615301	H75, H171
M77	620450	620450	H77
M78	619464	619464	H78
M79	613767	613767	H79
M80	615861	615861	H80, H81
M83	614930	614930	H83, H113
M84	615001	615001	H84, H86, H135, H136, H137
M87	612261	612261	H87
M88	612592	612592	H88
M89	618315	618315	H89, H165
M90	620082	620082	H90
M92	621472	621472	H92
M95	621470	621470	H93, H94, H95
M96	622628	622628	H96
M99	624716	624716	H99, H100
M101	616777	616777	H101, H169, H172
M110	621126	621126	H110, H111
M121	613091	613091	H120, H121, H122, H124, H125, H126
M132	611067	611067	H131, H132, H133
M139	612203	612203	H139, H140, H141
M143	608527	608527	H142, H143
M146	608491	608491	H146, H147
M155	625006	625006	H151, H152, H153, H154, H155, H156, H157
M158	624733	624733	H158
M160	624611	624611	H102, H149, H159, H160
M163	624991	624991	H163
M166	617669	617669	H164, H166

2.3 Deviations from the test plan

Due to the geographic location and the obstacles surrounding some of the measuring points, it was not possible to carry all the measurements. Table 2-2 shows the deviations from the test plan.

Table 2-2 Deviations from the test plan

Measurement point	Measurement	Reason
M43	TV	In between other test houses.
M45	TV	Joined with M46. From outside the property they are the same point.
M66	TV	Joined with M67. From outside the property they are the same point.

3 SURVEY RESULTS

3.1 Radio Strength Signal Survey - Results

During the site visit the radio stations as listed in Table 3-1 were identified.

Table 3-1 Identified FM commercial radio stations

Radio Station	Frequency [Mhz]
Vision Radio Network or Orbit FM or Kiss FM	87.6
Triple J	89.7
ABC News	91.3
ABC Classic	92.1
ACE Radio Network	94.5
Coast FM	95.3
Hit FM	96.9
ABC News Radio	97.7
Radio National	98.5
Not identified	99.4
Vision Christian Radio	100.9
Radio National	101.7
3 Way FM – Community Radio	103.7

Table 3-2 shows the results of the survey. Refer to APPENDIX F for the detailed measurement results of the survey.

Table 3-2 Radio – Survey Results

Measurement	87.6 [Mhz]	89.7 [Mhz]	91.3 [Mhz]	92.1 [Mhz]	92.9 [Mhz]	93.7 [Mhz]	94.5 [Mhz]	95.3 [Mhz]	96.9 [Mhz]	97.7 [Mhz]	98.5 [Mhz]	99.3 [Mhz]	101.7 [Mhz]	103.7 [Mhz]	107.9 [Mhz]
M04	7.38	28.16	19.65	24.98	12.95	17.71	22.76	21.18	18.25	17.24	18.80	8.05	22.60	7.57	5.77
M06	8.40	26.02	25.29	21.99	7.41	6.16	27.08	27.56	17.55	9.39	13.07	6.22	31.84	9.74	11.02
M19	5.91	30.66	24.70	22.29	7.00	9.53	9.96	16.14	15.39	17.49	12.37	7.58	33.33	7.27	8.25
M27	5.28	30.13	24.40	18.60	9.52	10.98	30.91	30.14	20.04	24.38	24.32	13.87	29.15	14.43	12.48
M37	6.61	14.90	16.22	21.06	19.18	11.70	26.52	26.60	17.51	8.36	7.58	8.20	34.58	15.16	7.60
M46	7.68	37.34	34.01	36.18	17.87	17.48	36.68	39.72	13.44	15.47	19.62	8.91	31.76	13.14	15.71
M47	6.85	24.92	27.59	26.75	8.49	8.57	13.43	12.71	9.74	17.93	17.91	8.58	38.10	9.14	16.07
M48	6.91	33.70	33.66	32.18	11.07	10.60	31.27	34.25	19.57	16.41	16.22	5.77	34.82	11.54	17.39
M49	8.93	38.52	38.66	39.11	16.51	16.10	19.38	22.02	22.46	21.35	22.26	9.82	37.42	10.53	12.39
M50	7.19	46.65	39.90	35.93	14.74	18.07	36.09	33.76	25.45	24.31	19.24	7.25	41.18	8.22	19.87
M51	9.00	21.38	25.24	27.58	19.15	21.14	35.25	36.03	22.71	22.33	21.60	9.87	33.01	16.01	19.07
M53	9.54	31.30	31.47	32.73	11.05	12.83	39.89	43.00	9.26	17.16	18.14	10.04	38.67	27.09	25.09
M54	7.28	23.65	26.53	25.77	9.42	7.35	27.62	24.23	14.87	19.29	19.99	8.86	27.33	9.94	7.32
M55	6.73	32.80	30.84	31.35	11.34	10.14	30.45	31.30	9.93	11.48	8.03	6.27	30.10	9.33	13.39
M57	6.08	41.42	42.28	43.22	18.28	17.45	49.63	48.00	21.82	23.32	23.13	7.21	43.87	30.10	30.86
M58	6.11	37.71	39.27	39.07	21.73	18.07	42.50	40.11	28.34	29.41	28.07	9.16	38.70	27.42	31.75
M59	5.84	31.11	32.49	34.26	14.35	16.44	42.11	45.03	19.70	17.69	20.88	8.40	35.11	22.94	31.88
M60	7.02	23.90	30.82	33.39	11.55	13.91	38.32	41.53	20.10	13.42	17.14	7.72	35.05	29.12	27.02
M62	6.75	18.14	15.60	23.80	21.12	23.81	34.37	35.11	25.61	27.33	26.54	7.01	18.74	22.69	21.59
M64	7.59	17.01	17.79	21.64	12.11	14.04	43.66	43.48	18.85	19.48	18.82	5.56	25.86	24.45	27.72
M67	6.38	21.61	10.73	17.81	12.92	17.57	40.14	39.69	14.04	12.50	15.75	6.83	28.57	26.99	30.30
M68	7.18	22.22	24.81	27.29	18.72	21.27	36.85	36.10	18.00	16.11	15.71	7.84	27.56	20.91	24.60
M69	6.44	27.33	22.43	24.34	25.32	29.64	44.62	44.64	21.83	25.32	23.24	12.09	24.40	27.10	18.87
M70	7.15	25.15	27.17	22.27	21.36	21.90	44.38	43.46	25.12	22.97	21.57	5.08	28.83	14.46	17.35
M71	6.44	26.78	19.17	16.79	24.15	24.38	31.45	23.86	22.36	19.68	19.14	6.97	21.62	20.97	19.28
M72	6.52	11.36	14.48	13.91	7.41	8.98	31.64	29.38	8.48	9.43	7.03	5.40	25.35	10.44	27.45
M73	7.64	26.95	25.62	21.43	12.32	14.79	25.64	25.88	21.20	20.98	20.58	10.01	22.22	16.51	18.53
M74	9.82	31.39	34.77	33.87	10.49	13.11	28.69	27.86	18.65	17.42	15.51	12.34	37.04	12.55	14.59
M75	6.61	28.40	24.19	22.06	13.19	17.00	29.69	29.30	22.17	21.49	18.52	8.30	26.45	14.16	9.49
M77	6.21	30.54	28.19	34.01	13.81	14.96	28.25	28.54	13.14	12.50	9.30	6.69	32.50	5.31	29.98
M78	8.13	20.32	10.15	18.31	15.13	15.87	39.65	40.28	19.65	22.34	21.18	5.21	35.32	20.64	24.09
M79	8.80	24.62	26.12	26.91	9.56	9.33	28.51	28.79	15.73	15.43	16.62	7.30	35.64	9.25	17.32
M80	5.51	29.38	34.58	34.62	13.55	18.26	34.54	35.28	11.02	11.98	18.65	8.54	32.11	8.71	9.71
M83	5.66	45.82	48.24	47.43	16.40	19.43	21.32	24.83	17.73	16.20	16.51	5.05	37.82	8.20	16.07

Measurement	87.6 [Mhz]	89.7 [Mhz]	91.3 [Mhz]	92.1 [Mhz]	92.9 [Mhz]	93.7 [Mhz]	94.5 [Mhz]	95.3 [Mhz]	96.9 [Mhz]	97.7 [Mhz]	98.5 [Mhz]	99.3 [Mhz]	101.7 [Mhz]	103.7 [Mhz]	107.9 [Mhz]
M84	5.48	15.25	17.03	20.01	10.45	14.03	29.11	28.21	10.82	7.61	7.81	5.46	27.05	10.09	19.09
M87	8.36	28.85	33.04	33.83	18.15	17.33	29.89	32.02	16.49	17.91	18.24	6.51	31.58	10.40	15.11
M88	9.41	33.00	31.03	34.48	6.65	12.86	31.71	32.01	12.84	11.61	11.07	7.49	37.49	8.04	16.43
M89	8.65	37.43	35.97	33.79	12.75	20.28	38.62	41.51	17.56	14.49	13.22	6.14	31.65	14.04	16.98
M90	6.87	9.99	12.72	21.73	8.73	11.13	39.49	37.77	15.20	13.29	16.27	8.66	26.30	16.52	19.90
M91	9.22	35.39	40.03	41.87	10.88	9.60	36.26	33.94	17.77	17.11	13.39	6.70	40.49	17.60	8.09
M92	6.31	13.98	18.05	15.63	15.76	18.77	37.37	35.92	18.41	17.98	16.04	10.94	24.78	17.69	24.29
M95	5.39	18.53	15.19	18.93	16.11	16.15	29.67	38.14	18.72	17.09	17.87	9.69	17.82	24.10	21.43
M96	8.27	14.26	17.91	23.14	17.93	20.77	36.22	37.16	17.92	16.18	13.38	8.64	31.07	16.27	29.19
M99	7.85	28.85	20.48	30.24	13.82	12.30	34.17	38.10	13.06	14.20	13.79	8.26	24.74	31.50	26.28
M110	7.96	38.46	41.68	42.22	15.05	16.68	38.14	45.21	13.89	12.94	9.02	7.92	41.81	20.62	16.49
M121	4.93	45.66	39.97	36.79	10.36	10.15	30.50	30.00	17.52	14.75	16.97	5.69	45.85	17.07	11.42
M132	3.74	35.81	31.26	30.45	13.12	15.36	23.62	22.10	18.16	17.52	17.82	6.95	27.90	6.90	14.56
M139	8.40	30.91	27.71	30.18	12.42	14.76	29.23	27.60	13.46	11.31	14.55	12.02	27.49	15.56	19.00
M143	8.26	34.35	37.22	38.08	16.82	20.82	32.48	30.72	20.10	19.67	18.26	11.46	27.13	12.66	13.13
M146	7.89	38.55	41.72	41.45	14.95	15.31	37.52	38.64	21.35	20.65	19.81	8.65	44.13	17.60	19.06
M155	5.92	41.17	42.94	42.60	10.78	9.88	31.07	37.69	8.51	10.80	15.85	8.09	44.29	26.02	34.66
M158	6.06	44.96	17.79	36.23	13.47	14.34	52.93	51.36	11.35	14.84	19.94	9.55	44.91	19.03	26.75
M160	7.12	27.07	27.74	26.24	8.85	10.30	37.93	36.72	15.04	12.82	13.65	7.23	28.83	16.11	24.26
M163	6.98	13.06	24.99	20.37	13.94	17.60	41.14	41.98	17.20	20.58	15.61	7.26	36.62	33.11	32.05
M166	8.73	40.45	37.85	35.66	19.37	23.21	43.72	41.57	23.82	23.80	22.50	6.28	33.98	15.92	21.81

Note: All the measurements are in µdBV

3.2 Television Strength Signal Survey - Results

The measurement on the television strength signal is highly dependent on the available towers serving the area. Three transmission towers serve the region, see Table 3-3.

Table 3-3 Transmission Towers serving the region

Transmission Tower	Approximate Distance [km]	Power [W]	Polarization
Tower Hill	22	8,000	Vertical
Warrnambool	30	630	Vertical
Narrawong	40	5,000	Horizontal

Note: it is possible in specific locations to detect signals from further towers. Nevertheless, only the channels mentioned in the test plan were investigated.

Tower Hill (see Figure 3-1) is the closest and signal-strongest transmission tower serving the area; therefore, the television antenna was aimed towards Tower Hill in a vertical configuration for the majority the measurement.

Additionally, at some of the locations the television antenna was aimed at Narrawong using the horizontal configuration. These locations were selected arbitrarily.

Figure 3-1 Tower Hill – Transmission Tower

As stated in the test plan [10] five television channels were identified (see Table 3-4) covering the area surrounding the wind farm

Table 3-4 Television channels and frequencies

Channel	Number	Frequency [MHz]
SBS	47	662.5
Nine	48	669.5
Win	49	676.5
ABC	50	683.5

Channel	Number	Frequency [MHz]
Prime	51	683.5

Table 3-5 shows the results of the survey. Refer to APPENDIX G for the detailed measurement results of the survey.

Table 3-5 Television Survey Results

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
M4	47	30.2	20.1	1x10^-2	
	48	29.8	16.4	1x10^-2	
	49	30.5	17.3	1x10^-2	
	50	28.2	16.8	1x10^-2	
	51	29.4	17.0	1x10^-2	
M6	47	30.2	20.1	1x10^-2	
	48	31.5	19.7	1x10^-2	Image pixelated
	49	30.6	18.2	1x10^-2	Image pixelated
	50	31.2	18.3	1x10^-2	
	51	32.1	19.6	1x10^-2	
M19	47	32.5	19.2	1x10^-2	
	48	30.2	18.8	1x10^-2	
	49	30.1	18.9	1x10^-2	
	50	28.1	16.7	1x10^-2	
	51	28.2	17.3	1x10^-2	
M27	47	< 25.0	18.2	1x10^-2	
	48	32.6	23.0	1x10^-2	
	49	29.1	29.5	1x10^-2	
	50	32.2	20.6	1x10^-2	
	51	36.0	23.0	2x10^-3	
M37	47	32.3	18.0	1x10^-2	
	48	28.0	18.2	1x10^-2	
	49	33.3	21.1	9x10^-3	Image pixelated
	50	34.3	20.8	9x10^-3	
	51	29.9	29.9	1x10^-2	
M43	47	30.2	20.1	1x10^-2	
	48	29.8	16.4	1x10^-2	
	49	30.5	17.3	1x10^-2	
	50	28.2	16.8	1x10^-2	
	51	29.4	17.0	1x10^-2	
M46 - Horizontal	47	30.2	20.1	1x10^-2	
	48	26.3	17.0	1x10^-2	
	49	32.1	17.1	1x10^-2	
	50	32.1	16.0	1x10^-2	
	51	31.9	16.3	1x10^-2	
M46 - Vertical	47	29.8	19.9	1x10^-2	
	48	29.8	16.4	1x10^-2	
	49	37.7	21.4	1x10^-2	Image pixelated
	50	28.3	22.2	1x10^-2	
	51	40.4	25.5	2x10^-3	
M47	47	41.4	25.8	1x10^-4	
	48	39.9	24.4	3x10^-4	
	49	36.8	23.9	8x10^-4	
	50	42.9	27.3	4x10^-5	
	51	37.9	24.3	1x10^-3	
M48	47	51.1	31.5	< 10^-6	
	48	52.0	32.7	< 10^-6	
	49	50.3	35.6	< 10^-6	
	50	49.8	33.4	< 10^-6	
	51	49.7	34.1	< 10^-6	
M49	47	40.8	26.2	1x10^-2	
	48	38.3	24.8	1x10^-2	
	49	41.0	27.0	1x10^-2	
	50	38.9	25.9	1x10^-2	
	51	39.0	26.0	1x10^-2	
M50	47	28.1	19.5	1x10^-2	
	48	32.2	18.5	1x10^-2	
	49	33.2	19.7	1x10^-2	
	50	< 25.0	18.2	1x10^-2	
	51	32.7	19.7	1x10^-2	
M51	47	30.8	18.0	1x10^-2	
	48	32.2	19.7	1x10^-2	
	49	31.9	17.5	1x10^-2	
	50	32.7	17.0	1x10^-2	
	51	32.4	18.6	1x10^-2	
M53	47	34.1	22.1	1x10^-2	
	48	40.5	24.3	1x10^-2	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	49	36.2	23.8	1x10^-2	
	50	39.1	25.6	1x10^-2	
	51	37.8	26.9	1x10^-2	
M54	47	< 25.0	17.9	1x10^-2	
	48	29.6	17.6	1x10^-2	
	49	28.6	19.2	1x10^-2	
	50	31.8	18.8	1x10^-2	
	51	31.0	18.1	1x10^-2	
M55	47	32.8	18.3	1x10^-2	
	48	< 25.0	18.2	1x10^-2	
	49	31.4	17.1	1x10^-2	
	50	34.0	18.6	1x10^-2	
	51	30.5	21.0	1x10^-2	
M57	47	45.1	28.2	< 10^-6	
	48	43.7	27.7	< 10^-6	
	49	42.7	17.3	1x10^-2	
	50	37.7	25.0	4x10^-4	
	51	41.9	22.5	7x10^-3	
M58 - Horizontal	47	51.1	31.5	< 10^-6	
	48	40.4	27.1	< 10^-6	
	49	31.6	18.6	1x10^-2	
	50	33.4	21.5	9x10^-3	
	51	29.8	21.4	9x10^-3	
M58 - Vertical	47	< 25.0	19.7	1x10^-2	
	48	34.0	20.9	9x10^-3	
	49	36.0	19.6	1x10^-2	
	50	32.5	19.4	1x10^-2	
	51	36.3	19.8	1x10^-2	Image pixelated
M59	47	48.2	31.7	< 10^-6	
	48	47.7	20.9	8x10^-3	
	49	47.3	32.7	< 10^-6	
	50	47.5	31.1	< 10^-6	
	51	45.8	31.4	< 10^-6	
M60	47	41.0	26.2	9x10^-6	
	48	42.2	25.5	1x10^-4	
	49	38.5	24.6	2x10^-4	Image pixelated
	50	39.2	24.7	1x10^-3	
	51	38.6	24.0	6x10^-4	
M62	47	33.1	18.8	1x10^-2	
	48	29.4	18.3	1x10^-2	
	49	34.0	21.0	9x10^-3	
	50	35.9	22.7	3x10^-3	
	51	35.2	23.0	1x10^-3	
M64	47	27.6	16.9	1x10^-2	
	48	31.6	18.6	1x10^-2	
	49	< 25.0	19.5	1x10^-2	
	50	33.6	20.4	1x10^-2	
	51	33.9	20.9	9x10^-3	
M66	47	51.5	31.5	< 10^-6	
	48	52.0	32.7	< 10^-6	
	49	50.3	35.6	< 10^-6	
	50	49.8	33.4	< 10^-6	
	51	49.7	34.1	< 10^-6	
M68	47	38.9	19.8	1x10^-2	
	48	31.5	19.0	1x10^-2	
	49	32.7	19.4	1x10^-2	
	50	33.4	21.0	9x10^-3	
	51	36.1	22.7	2x10^-3	
M69	47	38.7	24.6	3x10^-4	
	48	38.0	24.0	5x10^-4	
	49	36.7	23.8	9x10^-4	
	50	37.7	23.2	1x10^-3	
	51	35.1	22.1	3x10^-3	
M70	47	33.1	19.6	1x10^-2	
	48	30.2	17.9	1x10^-2	
	49	31.7	19.2	1x10^-2	
	50	31.9	19.7	1x10^-2	
	51	31.4	19.1	1x10^-2	
M71	47	NA	NA	NA	Image available

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	48	NA	NA	NA	Image available
	49	28.1	17.2	1x10^-2	
	50	28.3	17.0	1x10^-2	
	51	31.3	18.7	1x10^-2	
M72	47	33.6	21.0	9x10^-3	
	48	33.4	20.7	1x10^-2	
	49	34.3	21.0	9x10^-3	
	50	36.0	21.3	6x10^-3	
	51	33.5	21.2	9x10^-3	
M73	47	< 25.0	17.0	1x10^-2	
	48	33.0	19.6	1x10^-2	
	49	29.3	20.2	2x10^-3	
	50	37.7	23.1	1x10^-2	
	51	< 25.0	19.3	1x10^-2	
M74	47	28.0	18.8	1x10^-2	
	48	30.6	17.2	1x10^-2	
	49	33.4	16.6	1x10^-2	
	50	32.5	17.7	1x10^-2	
	51	32.5	18.2	1x10^-2	
M75	47	34.4	18.2	1x10^-2	
	48	< 25.0	18.0	1x10^-2	
	49	40.9	19.8	1x10^-2	
	50	< 25.0	20.9	1x10^-2	
	51	27.9	19.0	1x10^-2	
M77	47	45.0	29.5	< 10^-6	
	48	44.5	28.4	< 10^-6	
	49	43.5	29.1	< 10^-6	
	50	45.7	28.1	< 10^-6	
	51	42.8	29.6	< 10^-6	
M78	47	54.3	31.2	< 10^-6	
	48	53.3	34.7	< 10^-6	
	49	54.6	> 36	< 10^-6	
	50	55.7	33.5	< 10^-6	
	51	56.8	33.5	< 10^-6	
M79	47	41.4	26.0	1x10^-5	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	48	39.4	25.1	1x10^-4	
	49	39.4	25.8	2x10^-4	
	50	39.9	27.6	3x10^-4	
	51	29.2	21.0	1x10^-2	
M80	47	42.4	27.1	1x10^-5	
	48	44.8	28.3	< 10^-6	
	49	42.9	27.4	1x10^-4	Image pixelated
	50	43.9	28.3	7x10^-5	
	51	40.7	25.8	9x10^-5	
M83	47	39.8	20.4	1x10^-2	
	48	40.4	20.5	1x10^-2	
	49	29.1	21.8	1x10^-2	
	50	28.1	19.4	9x10^-3	
	51	28.9	20.1	1x10^-2	
M84	47	26.2	17.7	1x10^-2	
	48	< 25.0	19.9	1x10^-2	
	49	33.4	20.9	1x10^-2	
	50	34.1	19.4	1x10^-2	
	51	26.6	17.3	1x10^-2	
M87	47	46.5	30.3	< 10^-6	
	48	46.4	29.6	< 10^-6	
	49	45.5	29.7	< 10^-6	
	50	45.5	30.3	6x10^-6	
	51	45.2	30.6	< 10^-6	
M88	47	45.1	30.1	< 10^-6	
	48	44.8	29.2	< 10^-6	
	49	44.5	31.3	< 10^-6	
	50	45.5	30.3	1x10^-5	
	51	44.9	30.9	< 10^-6	
M89	47	41.7	25.8	4x10^-5	
	48	38.0	25.2	9x10^-5	
	49	39.5	25.5	2x10^-4	
	50	38.3	24.2	6x10^-4	
	51	NA	NA	NA	
M90	47	36.2	22.8	8x10^-3	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	48	28.3	19.8	1x10^-2	
	49	31.8	16.9	1x10^-2	
	50	< 25.0	18.4	1x10^-2	
	51	37.7	22.9	4x10^-3	
M92	47	< 25.0	19.1	1x10^-2	
	48	29.3	16.0	1x10^-2	
	49	27.7	16.5	1x10^-2	
	50	25.2	16.5	1x10^-2	
	51	25.2	16.4	1x10^-2	
M95	47	32.4	20.4	1x10^-2	
	48	33.8	20.7	1x10^-2	
	49	34.8	21.4	6x10^-3	
	50	35.1	22.2	3x10^-3	
	51	37.3	23.9	6x10^-4	
M96	47	NA	NA	NA	Image available
	48	36.4	22.8	1x10^-2	
	49	37.2	23.0	1x10^-2	
	50	35.9	23.6	1x10^-2	
	51	37.3	23.9	1x10^-2	
M99	47	34.2	21.0	9x10^-3	
	48	34.0	20.5	9x10^-3	
	49	31.7	20.4	1x10^-2	
	50	34.7	20.5	1x10^-2	
	51	29.1	19.8	1x10^-2	
M101	47	31.3	20.1	1x10^-2	
	48	37.1	23.2	1x10^-3	
	49	37.3	23.5	1x10^-3	
	50	36.6	26.1	1x10^-3	
	51	< 25.0	19.6	1x10^-2	
M110	47	40.2	25.7	9x10^-5	
	48	31.8	21.5	9x10^-3	
	49	33.1	21.1	9x10^-3	
	50	33.7	21.4	1x10^-2	
	51	32.0	21.0	8x10^-3	
M121	47	37.6	25.2	3x10^-4	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	48	41.6	22.5	8x10^-3	
	49	42.6	24.6	9x10^-3	
	50	34.5	28.0	6x10^-3	
	51	35.5	17.8	1x10^-2	
M132	47	41.1	26.5	4x10^-6	
	48	38.8	25.4	4x10^-5	
	49	40.6	25.1	3x10^-4	
	50	35.6	22.9	2x10^-3	
	51	33.9	21.9	6x10^-3	
M139	47	32.9	17.3	1x10^-2	Image pixelated
	48	31.9	16.7	1x10^-2	
	49	26.9	16.8	1x10^-2	
	50	30.0	17.6	1x10^-2	
	51	25.2	17.4	1x10^-2	
M143	47	29.5	15.9	1x10^-2	
	48	33.6	22.8	1x10^-2	
	49	29.6	15.9	1x10^-2	
	50	29.4	19.9	1x10^-2	
	51	29.4	18.5	1x10^-2	
M146	47	34.1	21.8	9x10^-3	
	48	35.5	22.6	2x10^-3	
	49	37.1	23.3	1x10^-3	
	50	32.0	22.4	5x10^-3	
	51	35.8	21.8	6x10^-3	
M155	47	29.1	17.1	1x10^-2	
	48	NA	NA	NA	Image available
	49	37.3	21.0	9x10^-3	
	50	33.2	23.1	6x10^-3	
	51	32.5	16.5	1x10^-2	
M158	47	47.9	32.3	< 10^-6	
	48	47.7	21.7	5x10^-3	
	49	50.6	32.9	< 10^-6	
	50	48.9	31.6	< 10^-6	
	51	49.0	32.0	< 10^-6	
M160	47	31.7	22.2	4x10^-3	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	48	34.0	21.0	8x10^-3	
	49	37.6	20.7	1x10^-2	
	50	< 25.0	19.1	1x10^-2	
	51	30.8	19.4	1x10^-2	
M163	47	26.2	16.5	1x10^-2	
	48	40.4	26.0	1x10^-6	
	49	39.4	25.6	2x10^-4	

Measurement	Channel	power [µdbV]	MER [dB]	bBER [-]	Notes
	50	39.4	25.7	3x10^-4	
	51	38.9	24.4	4x10^-4	
M166	47	31.3	31.3	1x10^-2	
	48	49.4	30.5	1x10^-2	
	49	49.9	31.1	1x10^-2	
	50	49.7	30.0	1x10^-2	
	51	48.7	33.8	1x10^-2	

3.3 Measurement equipment

The Survey was carried out with the measurement equipment listed in Table 3-6.

Table 3-6 Measurement Equipment

Device	Description
Spectrum Analyser	Anritsu MS2712E 4 GHz Spectrum Analyser
Television Analyser	Rover HD TAB EVO Lite CATV, SAT, and TV Analyser
Radio Antenna	Rojane, Omnidirectional Antenna, APN 16 Base, 1.6m long, bandwidth 88 – 108 MHz;
Television Antenna	Antsig Fringe 65 Element outdoor Antenna

The calibration certificate for the Spectrum Analyser is shown in APPENDIX E.

4 REFERENCES

No. Reference

[1] DNV, "EMI Assessment Hawkesdale Wind Farm", document: "170492-AUME-R-01-C", 18 February 2016.

[2] Australian Communications and Media Authority (ACMA), broadcasters for postcode 3284, https://www.acma.gov.au/search-broadcasters-place-name, consulted on 06 November 2020.

[3] Radio Heritage Foundation, "The Australian Radio Guide FM Stations in Victoria", http://www.radioheritage.net/AusG-Full.asp?band=FM&ste=VIC, consulted on 06 November 2020.

[4] Radio Heritage Foundation, "The Australian Radio Guide FM Stations in Port Fairy", http://www.radioheritage.net/AusG-Full.asp?band=All&loc=Port+Fairy&ste=VIC, consulted on 06 November 2020.

[5] Radio Heritage Foundation, "The Australian Radio Guide FM Stations in Warrnambool", http://www.radioheritage.net/AusG-Full.asp?band=All&loc=Warrnambool&ste=VIC, consulted on 06 November 2020.

[6] ABC, "Help receiving ABC TV and Radio - Coverage & Frequency Search", http://reception.abc.net.au/, consulted on 06 November 2020.

[7] Oz Digital TV, "Warrnambool Digital TV Broadcast Site", https://ozdigitaltv.com/transmitters/VIC/769-Warrnambool, consulted on 09 November 2020.

[8] Oz Digital TV, "Tower Hill Digital TV Broadcast Site", https://ozdigitaltv.com/transmitters/VIC/314-Tower-Hill, consulted on 09 November 2020.

[9] mySwitch, "Coverage Summary, port fairy Vic 3284", https://myswitch.digitalready.gov.au/#27, consulted on 09 November 2020.

[10] DNV, "Test Plan for Radio & Television Pre-Construction Survey at the Hawkesdale Wind Farm", document: "10265612-AUME-R-01-A", 10 November 2020.

[11] Email from Fiona Koutsivos; Subject; "RE: Ryan Corner/Hawkesdale Project Meeting Notes 28.09"; 08 October 2020.

[12] ERM, email from Christine Hartley; Subject; " RE: RCWF - amended site layout"; 07 April 2021.

APPENDIX A PROPOSED WIND TURBINES COORDINATES

Table A-1 Proposed turbine layout for the project[1]

Turbine	Easting[2]	Northing[2]
A1	619551	5780999
A2	620052	5780838
A3	618466	5780969
A4	619026	5780716
A5	619489	5780437
A7	619974	5780059
A8	620518	5779829
A9	619999	5779406
A10	620423	5778955
A11	619933	5778714
A13	620319	5778204
A14	619427	5778019
A15	619939	5777722
A17	619162	5777263
A19	618450	5779788
A20	618826	5779402
A21	618085	5779362
A22	618427	5778904
A23	617535	5779352
A24	617739	5778894
A25	617885	5778384
A26	617000	5778978
A27	617363	5778498
A28	617098	5776397
A30	617900	5775264
A31	617587	5775103

Note 1: coordinates obtained from [1].
Note 2: coordinate system used is Zone 54H, AGD66 datum.

APPENDIX B DWEALLINGS COORDINATES

Table B-2 Existing dwellings in the vicinity of the Hawkesdale Wind Farm[1]

Dwelling ID	Easting[2] [m]	Northing[2] [m]	Nearest Turbine	Distance from nearest turbine [km]	Within 5 km	Measurement at
H1	615838	5781370	A23	2.6	Yes	M19
H2	615848	5781395	A3	2.6	Yes	M19
H3	615834	5781422	A3	2.7	Yes	M19
H4	615931	5780634	A26	2	Yes	M4
H5	615756	5780855	A26	2.3	Yes	M6
H6	615758	5780919	A26	2.3	Yes	M6
H7	615724	5780789	A26	2.2	Yes	M4
H8	615856	5781340	A23	2.6	Yes	M19
H9	615864	5781092	A26	2.4	Yes	M6
H10	615842	5781151	A26	2.5	Yes	M6
H11	615849	5781196	A23	2.5	Yes	M19
H12	615763	5781254	A26	2.6	Yes	M19
H13	615769	5781149	A26	2.5	Yes	M6
H14	615767	5781061	A26	2.4	Yes	M6
H15	615777	5781451	A3	2.7	Yes	M19
H16	615758	5781323	A23	2.7	Yes	M19
H17	615667	5781316	A26	2.7	Yes	M19
H18	616198	5781270	A3	2.3	Yes	M43
H19	615696	5781301	A26	2.7	Yes	M19
H20	615693	5781334	A26	2.7	Yes	M19
H21	615650	5781325	A26	2.7	Yes	M19
H22	615613	5781316	A26	2.7	Yes	M19
H23	616107	5781342	A3	2.4	Yes	M43
H24	616031	5781282	A23	2.4	Yes	M43
H25	616035	5781322	A3	2.5	Yes	M43
H26	615567	5781315	A26	2.7	Yes	M19
H27	616255	5780958	A23	2.1	Yes	M27
H28	616306	5781031	A23	2.1	Yes	M27
H29	616351	5781214	A3	2.1	Yes	M43
H30	616143	5780822	A23	2	Yes	M27
H31	616122	5780897	A23	2.1	Yes	M27
H32	615127	5780823	A26	2.6	Yes	M37
H33	615311	5780860	A26	2.5	Yes	M37
H34	615208	5780848	A26	2.6	Yes	M37
H35	615164	5780814	A26	2.6	Yes	M37
H36	615505	5780789	A26	2.3	Yes	M37
H37	615269	5780664	A26	2.4	Yes	M37
H38	615425	5780649	A26	2.3	Yes	M37
H39	615667	5781316	A26	2.7	Yes	M19
H40	616044	5780416	A26	1.7	Yes	M4
H41	615869	5781047	A26	2.4	Yes	M6
H42	616066	5781195	A23	2.4	Yes	M43
H43	616024	5781252	A23	2.4	Yes	M43
H44	615994	5781113	A23	2.3	Yes	M43
H45	614522	5774130	A31	3.2	Yes	M45
H46	615305	5774062	A31	2.5	Yes	M46
H47	615365	5776046	A28	1.8	Yes	M47
H48	615985	5776720	A28	1.2	Yes	M48
H49	614661	5773009	A31	3.6	Yes	M49
H50	615388	5770814	A31	4.8	Yes	M50
H51	615686	5782292	A3	3.1	Yes	M51

Dwelling ID	Easting[2] [m]	Northing[2] [m]	Nearest Turbine	Distance from nearest turbine [km]	Within 5 km	Measurement at
H52	615720	5782004	A3	2.9	Yes	M51
H53	615956	5778615	A26	1.1	Yes	M53
H54	614278	5777092	A28	2.9	Yes	M54
H55	613253	5776851	A28	3.9	Yes	M55
H57	622253	5775083	A15	3.5	Yes	M57
H58	621562	5777844	A13	1.3	Yes	M58
H59	621532	5778697	A10	1.1	Yes	M59
H60	621614	5779538	A8	1.1	Yes	M60
H61	621034	5780713	A2	1.0	Yes	M62
H62	621538	5780594	A8	1.3	Yes	M62
H64	620085	5782720	A1	1.8	Yes	M64
H65	618319	5783428	A3	2.5	Yes	M71
H66	619699	5783912	A1	2.9	Yes	M66
H67	620013	5784514	A1	3.6	Yes	M67
H68	620679	5784116	A1	3.3	Yes	M68
H69	617091	5783106	A3	2.5	Yes	M69
H70	617664	5783364	A3	2.5	Yes	M70
H71	618321	5783738	A3	2.8	Yes	M71
H72	617467	5782352	A3	1.7	Yes	M72
H73	617023	5782003	A3	1.8	Yes	M73
H74	613607	5779530	A26	3.4	Yes	M74
H75	615301	5779069	A26	1.7	Yes	M75
H77	620450	5775106	A17	2.5	Yes	M77
H78	619464	5774701	A30	1.7	Yes	M78
H79	613767	5773192	A31	4.3	Yes	M79
H80	615861	5775655	A28	1.4	Yes	M80
H81	616027	5775828	A28	1.2	Yes	M80
H82	614807	5773023	A31	3.5	Yes	M49
H83	614930	5769891	A31	5.9	No	M83
H84	615001	5784248	A3	4.8	Yes	M84
H85	614084	5786998	A3	7.5	No	N/A
H86	615119	5784218	A3	4.7	Yes	M84
H87	612261	5777081	A28	4.9	Yes	M87
H88	612592	5775761	A28	4.5	Yes	M88
H89	618315	5776542	A17	1.1	Yes	M89
H90	620082	5777137	A15	0.6	Yes	M90
H91	609818	5776327	A28	7.3	No	N/A
H92	621472	5785306	A2	4.7	Yes	M92
H93	621474	5785983	A2	5.3	No	M95
H94	621478	5786033	A2	5.4	No	M95
H95	621470	5786016	A2	5.4	No	M95
H96	622628	5784873	A2	4.8	Yes	M96
H97	623372	5784951	A2	5.3	No	N/A
H98	624002	5785036	A2	5.8	No	N/A
H99	624716	5785077	A2	6.3	No	M99
H100	625114	5785071	A2	6.6	No	M99
H101	616777	5780110	A23	1.1	Yes	M101
H102	624578	5773200	A15	6.5	No	M160
H103	624070	5771647	A30	7.1	No	N/A
H104	623289	5771802	A30	6.4	No	N/A
H105	623278	5771810	A30	6.4	No	N/A
H106	623077	5771849	A30	6.2	No	N/A
H107	622969	5771875	A30	6.1	No	N/A
H108	622910	5771882	A30	6.0	No	N/A

Dwelling ID	Easting[2] [m]	Northing[2] [m]	Nearest Turbine	Distance from nearest turbine [km]	Within 5 km	Measurement at
H109	622836	5771893	A30	6.0	No	N/A
H110	621126	5772170	A30	4.5	Yes	M110
H111	621198	5772157	A30	4.5	Yes	M110
H112	624280	5770203	A30	8.1	No	N/A
H113	615019	5769085	A31	6.6	No	M83
H114	615823	5769083	A31	6.3	No	N/A
H115	615920	5769083	A31	6.3	No	N/A
H116	618059	5768498	A31	6.6	No	N/A
H117	614544	5767596	A31	8.1	No	N/A
H118	614645	5770679	A31	5.3	No	N/A
H119	614176	5770948	A31	5.4	No	N/A
H120	613508	5771329	A31	5.6	No	M121
H121	613091	5771578	A31	5.7	No	M121
H122	611897	5772988	A31	6.1	No	M121
H123	610950	5774098	A28	6.6	No	N/A
H124	612490	5771532	A31	6.2	No	M121
H125	612127	5771538	A31	6.5	No	M121
H126	611550	5771536	A31	7.0	No	M121
H127	610124	5771401	A31	8.3	No	N/A
H128	609517	5771181	A31	9.0	No	N/A
H129	609637	5771358	A31	8.8	No	N/A
H130	609850	5775326	A28	7.3	No	N/A
H131	611067	5775711	A28	6.1	No	M132
H132	611067	5775684	A28	6.1	No	M132
H133	610954	5775313	A28	6.2	No	M132
H134	610585	5774627	A28	6.7	No	N/A
H135	614750	5784569	A3	5.2	No	M84
H136	614815	5784191	A3	4.9	Yes	M84
H137	614815	5784191	A3	4.9	Yes	M84
H139	612203	5782565	A26	6.0	No	M139
H140	612150	5782659	A26	6.1	No	M139
H141	611937	5782969	A26	6.4	No	M139
H142	607581	5782800	A26	10.1	No	M143
H143	608527	5782800	A26	9.3	No	M143
H144	606776	5781497	A26	10.5	No	N/A
H145	606771	5780585	A26	10.3	No	N/A
H146	608491	5779620	A26	8.5	No	M146
H147	609063	5779604	A26	7.9	No	M146
H148	611109	5779583	A26	5.9	No	N/A
H149	624663	5773553	A15	6.3	No	M160
H150	626173	5785005	A2	7.4	No	N/A
H151	625211	5777826	A13	4.9	Yes	M155
H152	625103	5777633	A13	4.8	Yes	M155
H153	625053	5777517	A13	4.8	Yes	M155
H154	625022	5777463	A13	4.8	Yes	M155
H155	625006	5777433	A13	4.7	Yes	M155
H156	624915	5777276	A13	4.7	Yes	M155
H157	624819	5776868	A13	4.7	Yes	M155
H158	624733	5776364	A13	4.8	Yes	M158
H159	624705	5774253	A15	5.9	No	M160
H160	624611	5773783	A15	6.1	No	M160
H161	625657	5781121	A8	5.3	No	N/A
H162	625657	5781121	A8	5.3	No	N/A
H163	624991	5781122	A8	4.6	Yes	M163

Dwelling ID	Easting[2] [m]	Northing[2] [m]	Nearest Turbine	Distance from nearest turbine [km]	Within 5 km	Measurement at
H164	617577	5777085	A28	0.8	Yes	M166
H165	618261	5776488	A28	1.2	Yes	M89
H166	617669	5776914	A28	0.8	Yes	M166
H167	616510	5780986	A23	1.9	Yes	M27
H168	615558	5781279	A26	2.7	Yes	M19
H169	616848	5780043	A23	1.0	Yes	M101
H171	615942	5779036	A26	1.1	Yes	M75, M53
H172	616720	5780829	A23	1.7	Yes	M27, M101

Note 1: coordinates obtained from [1].
Note 2: coordinate system used is Zone 54M, AGD66 datum.

APPENDIX C IDENTIFIED RADIO TRANSMITTERS AND AREA SERVED


Edenhope
Stawell
Halls Gap
Ararat
Beaufort
Willaura
Casterton
Coleraine
Dunkeld
Skipton
Lake Bolac
Hamilton
Penshurst
Dartmoor
Derrinallum
Lismore
Macarthur
Mortlake
Heywood
Terang
Camperdown
Koroit
Bushfield
Cobden
Portland
Port Fairy
Allansford
Warrnambool
Timboon
Peterborough
Port Campbell
WARRNAMBOOL RA1
Area ID: 441
Determined: 22 March 2018 (2001 Census)
Legend
Coastline; State Borders
Licence Area
Principal Roads; Cities (Medium & Large)
Secondary Roads; Towns, Cities (Small)
Minor Roads; Localities
0
12.5
25
50
kilometres
Australian Government
acma
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Willaura
Dunkeld
Hamilton
Lake Bolac
Skipton
Penshurst
Derrinallum
Lismore
Macarthur
Mortlake
Noorat
Terang
Camperdown
Koroit
Bushfield
Cobden
Port Fairy
Warrnambool
Allansford
Timboon
Peterborough
Port Campbell
WARRNAMBOOL RA2
Area ID: 465
Determined: 22 March 2018 (2001 Census)
Legend
Coastline; State Borders
Licence Area
Principal Roads; Cities (Medium & Large)
Secondary Roads; Towns, Cities (Small)
Minor Roads; Localities
0
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kilometres
Australian Government
acma
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Tooleybuc
Ouyen
Menangatang
Moulamein
Nyah West
Underbool
Swan Hill
Lake Boga
Wakool
Sea Lake
Deniliquin
Barham
Kerang
Cohuna
Woomelang
Hopetoun
Quambatook
Mathoura
Strathmerton
Cobram
Rainbow
Beulah
Birchip
Pyramid Hill
Nathalia
Katamatite
Yarrawonga
Corowa
Wycheproof
Boort
Echuca
Numurkah
Tungamah
Chiltern
Albury
Jeparit
Tallygaroopna
Warracknabeal
Charlton
Lockington
Kyabram
Dookie
Eldorado
Beechworth
Donald
Rochester
Shepparton
Wangaratta
Nhill
Wedderburn
Tatura
Kaniva
Elmore Stanhope
Dimboola
Minyip
Rushworth
Benalla
Moyhu
Myrtleford
Inglewood
Goornong
Murchison
Violet Town
Bright
Murtoa
Rupanyup
St Arnaud
Bendigo
Euroa
Goroke
Natimuk
Horsham
Axedale
Nagambie
Harrietville
Dunolly
Heathcote
Avenel
Malden
Seymour
Mansfield
Edenhope
Stawell
Avoca
Maryborough
Castlemaine
Pyalong
Mount Buller
Halls Gap
Kyneton
Yea
Alexandra
Eildon
Ararat
Clunes
Daylesford
Romsey
Hazeldene
Trentham
Wallan
Creswick
Beaufort
Gisborne
Kinglake
Marysville
Cardigan Village
Sunbury
Whittlesea
Willaura
Ballarat
Balan
Casterton
Melton
Healesville
Coleraine
Dunkeld
Linton
Lake Bolac
Skipton
Enfield
Warburton
Melbourne
Woori Yallock
Hamilton
Meredith
Emerald
Heyfield
Maffra
Penshurst
Werribee South
Neerim South
Rawson
Dartmoor
Lismore
Bannockburn
Lara
Pakenham
Sale
Willow Grove
Macarthur
Mortlake
Warragul
Moe-Yallourn
Rosedale
Geelong
Koo-Wee-Rup
Winchelsea
Traralgon
Heywood
Camperdown
Beeac
Moriac
Ocean Grove
Pearcedale
Terang
Birregurra
Torquay
Shoreham
Mirboo North
Port Fairy
Colac
Anglesea
Cowes
Leongatha
Portland
Warrnambool
Timboon
Wonthaggi
Yarram
Port Campbell
Foster
Apollo Bay
Sandy Point
Currie
Stanley
VICTORIA COMMUNITY RA1
Area ID: 1212
Determined: 22 March 2018 (2001 Census)
Legend
Coastline; State Borders
Licence Area
Principal Roads; Cities (Medium, Large)
Secondary Roads; Towns, Cities (Small)
Minor Roads; Localities
0
37.5
75
150
kilometres
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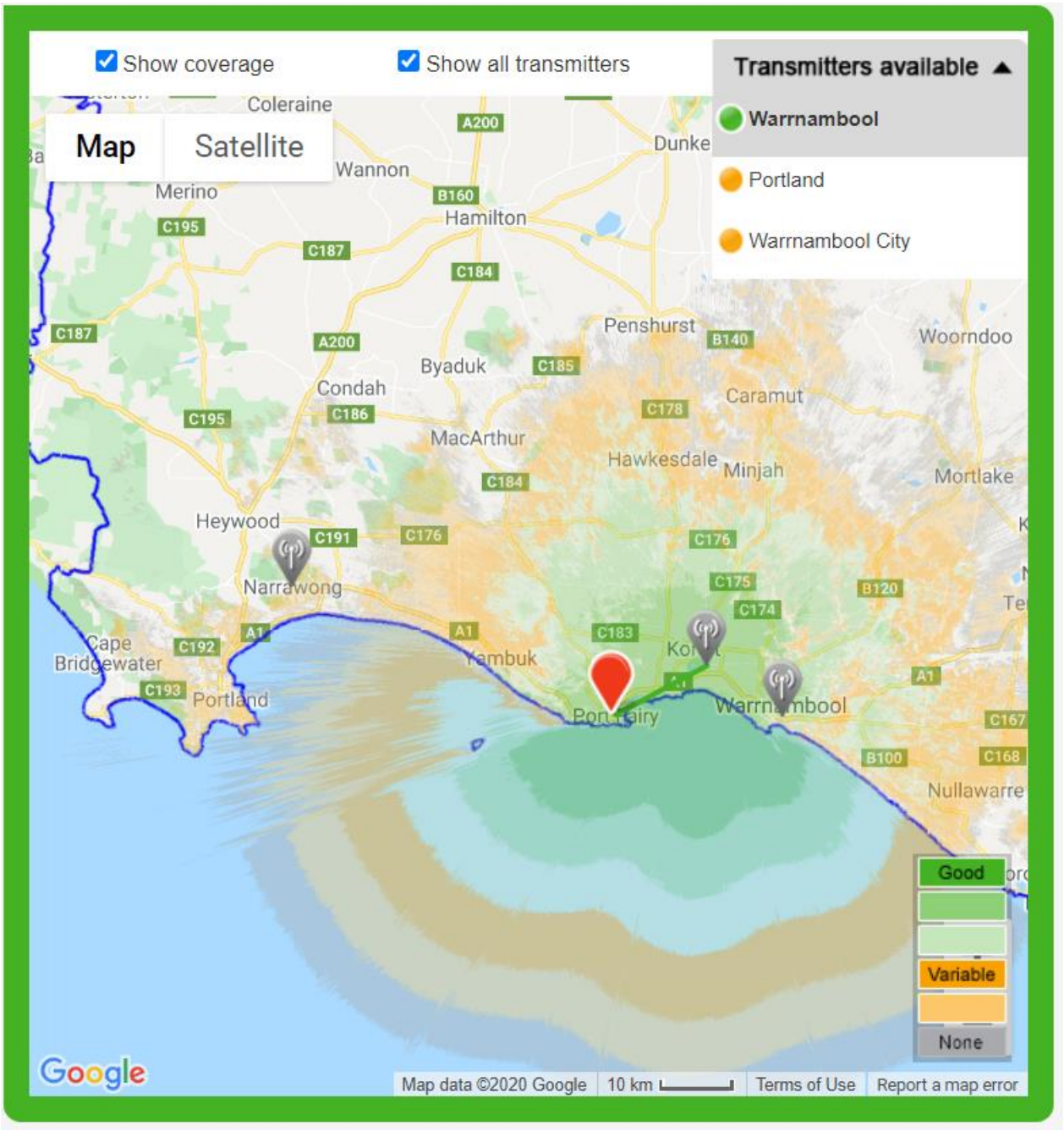
APPENDIX D IDENTIFIED TELEVISION TRANSMITTERS AND AREA SERVED



APPENDIX E CALIBRATION CERTIFICATES

#202457

TR calibration

Accredited for compliance with ISO/IEC 17025 - Calibration

NATA Accredited Laboratory Number 116.
Site Number 109

NATA ACCREDITED FOR TECHNICAL COMPETENCE

CALIBRATION REPORT

Report Number NC 19.36245

Instrument Details:	
Description:	Spectrum Analsyer
Brand:	Anritsu
Model:	MS2712E
Serial No:	1532006
Asset No:	202459
CALID No:	1035069

Customer Details:
Tech-Rentals Pty Limited - Prestons
41 Enterprise Circuit
Prestons NSW 2170

Reference:
PO074501
Test Location:
Prestons

Test Details:	
Calibration Date:	21, January 2020
Client Specified Due Date:	21, January 2021
Issue Date:	21, January 2020
Environment:	23 °C

Traceability
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/National Standards or a natural physical constant.

Procedure/Specification Reference
CP980628 / Manufacturer's Specifications

Test Results:
As Found Condition: All measurements fall within the tolerance limits specified in the above Specification Reference.

As Left Condition: All measurements fall within the tolerance limits specified in the above Specification Reference. No adjustments were made.

Testing Officer: Denis Thomas

Approved Signatory: David Leung

Attachment A: **Test Results** (11 pages)

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

Web Page: www.trcalibration.com.au
The results only relate to the instrument identified in this report.
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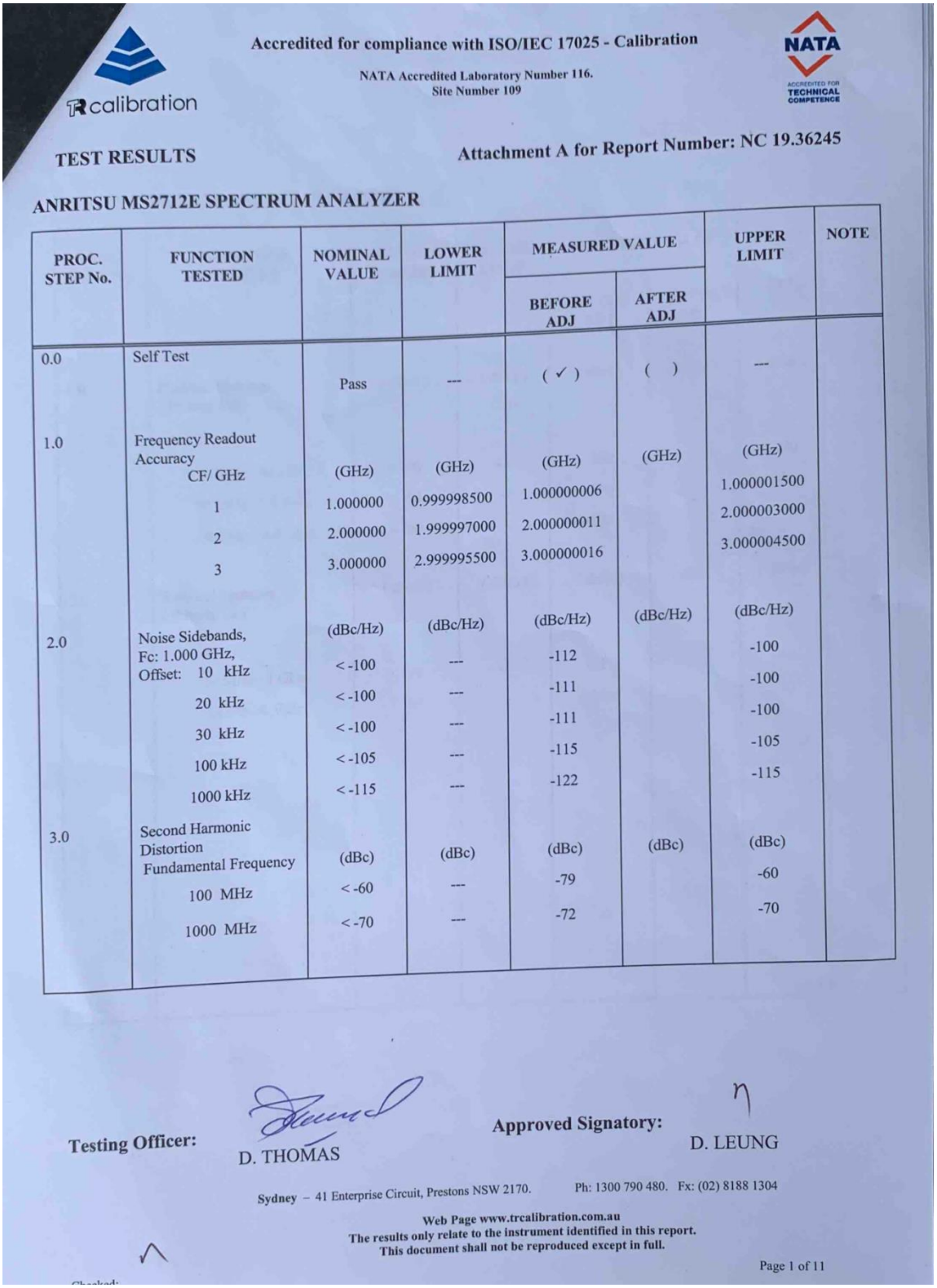
Page 1 of 1



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Site Number 109

TRcalibration

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TEST RESULTS — **Attachment A for Report Number: NC 19.36245**

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
0.0	Self Test	Pass	---	(✓)	( )	---	
1.0	Frequency Readout Accuracy						
	CF/ GHz	(GHz)	(GHz)	(GHz)	(GHz)	(GHz)	
	1	1.000000	0.999998500	1.000000006		1.000001500	
	2	2.000000	1.999997000	2.000000011		2.000003000	
	3	3.000000	2.999995500	3.000000016		3.000004500	
2.0	Noise Sidebands, Fc: 1.000 GHz,	(dBc/Hz)	(dBc/Hz)	(dBc/Hz)	(dBc/Hz)	(dBc/Hz)	
	Offset: 10 kHz	< -100	---	-112		-100	
	20 kHz	< -100	---	-111		-100	
	30 kHz	< -100	---	-111		-100	
	100 kHz	< -105	---	-115		-105	
	1000 kHz	< -115	---	-122		-115	
3.0	Second Harmonic Distortion						
	Fundamental Frequency	(dBc)	(dBc)	(dBc)	(dBc)	(dBc)	
	100 MHz	< -60	---	-79		-60	
	1000 MHz	< -70	---	-72		-70	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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Site Number 109

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TEST RESULTS **Attachment A for Report Number: NC 19.36245**

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
4.0	Residual Spurious (Preamp Off)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	
	10 MHz - 50 MHz	< -90	---	-109		-90	
	50 MHz - 2.0 GHz	< -90	---	-106		-90	
	2.0 GHz – 4.0 GHz	< -90	---	-103		-90	
5.0	Residual Spurious (Preamp On)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	
	10 MHz - 1 GHz	< -90	---	-111		-90	
	1 GHz - 4 GHz	< -90	---	-100		-90	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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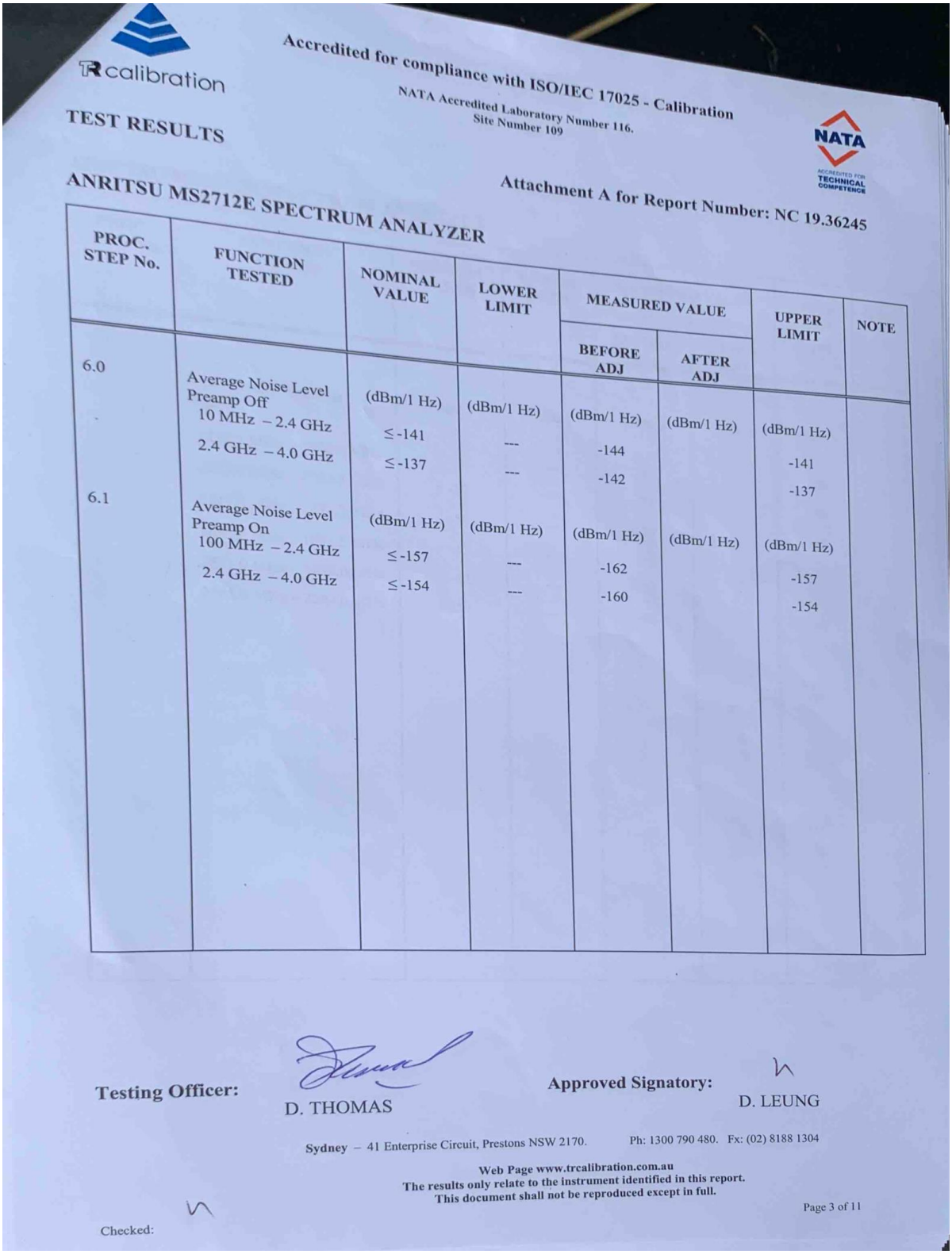

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TEST RESULTS

ANRITSU MS2712E SPECTRUM ANALYZER

Attachment A for Report Number: NC 19.36245

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
6.0	Average Noise Level Preamp Off	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	
	10 MHz – 2.4 GHz	≤-141	---	-144		-141	
	2.4 GHz – 4.0 GHz	≤-137	---	-142		-137	
6.1	Average Noise Level Preamp On	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	(dBm/1 Hz)	
	100 MHz – 2.4 GHz	≤-157	---	-162		-157	
	2.4 GHz – 4.0 GHz	≤-154	---	-160		-154	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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NATA Accredited Laboratory Number 116.
Site Number 109

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ACCREDITED FOR TECHNICAL COMPETENCE

TEST RESULTS **Attachment A for Report Number: NC 19.36245**

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
7.0	Input Related Spurious Signals	(dBc)	(dBc)	(dBc)	(dBc)	(dBc)	
	1222.5 MHz – 2072.0 MHz	< -70	---	-72		-70	
	2073.0 MHz – 2922.5 MHz	< -70	---	-73		-70	
	1219.0 MHz – 1221.0 MHz	< -52	---	-79		-52	
	1689.5 MHz – 1691.5 MHz	< -52	---	-79		-52	
	2821.0 MHz – 2823.0 MHz	< -52	---	-74		-52	
	2505.0 MHz – 2507.0 MHz	< -39	---	-66		-39	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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NATA Accredited Laboratory Number 116.
Site Number 109

NATA ACCREDITED FOR TECHNICAL COMPETENCE

TEST RESULTS **Attachment A for Report Number: NC 19.36245**

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
8.0	Resolution Bandwidth						
	RBW Setting	(Hz)	(Hz)	(Hz)	(Hz)	(Hz)	
	10 Hz	10.0	9.0	10.3		11.0	
	30 Hz	30.0	27.0	30.9		33.0	
	100 Hz	100.0	90.0	100.0		110.0	
	300 Hz	300.0	270.0	302.0		330.0	
		(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	
	1 kHz	1.00	0.90	1.01		1.10	
	3 kHz	3.00	2.7	3.05		3.30	
	10 kHz	10.0	9.0	10.3		11.0	
	30 kHz	30.0	27.0	29.7		33.0	
	100 kHz	100.0	90.0	102.5		110.0	
	300 kHz	300.0	270.0	303.9		330.0	
		(MHz)	(MHz)	(MHz)	(MHz)	(MHz)	
	1 MHz	1.00	0.90	1.04		1.10	
	3 MHz	3.0	2.7	3.0		3.3	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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Site Number 109

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TEST RESULTS

ANRITSU MS2712E SPECTRUM ANALYZER

Attachment A for Report Number: NC 19.36245

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
9.0	Frequency Response						
	@ -2 dBm/ Att. Level 30dB	(dB)	(dB)	(dB)	(dB)	(dB)	
	9 kHz	-2.0	-4.0	-1.4		0.0	
	50 kHz	-2.0	-4.0	-2.00		0.0	
	100 kHz	-2.0	-4.0	-2.05		0.0	
	1 MHz	-2.00	-3.25	-2.05		-0.75	
	5 MHz	-2.00	-3.25	-2.06		-0.75	
	10 MHz	-2.00	-3.25	-2.09		-0.75	
	50 MHz	-2.00	-3.25	-2.07		-0.75	
	100 MHz	-2.00	-3.25	-2.08		-0.75	
	500 MHz	-2.00	-3.25	-2.09		-0.75	
	1000 MHz	-2.00	-3.25	-2.02		-0.75	
	2000 MHz	-2.00	-3.25	-2.12		-0.75	
	3000 MHz	-2.00	-3.25	-2.21		-0.75	
	4000 MHz	-2.00	-3.25	-2.26		-0.75	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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TEST RESULTS

Attachment A for Report Number: NC 19.36245

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
9.1	Frequency Response @ -2 dBm	(dB)	(dB)	(dB)	(dB)	(dB)	
	10 MHz @ Att. Level/dB 40	-2.00	-3.25	-2.05		-0.75	
	10 MHz @ 50	-2.00	-3.25	-2.06		-0.75	
	10 MHz @ 55	-2.00	-3.25	-2.06		-0.75	
	1000 MHz @ 40	-2.00	-3.25	-2.00		-0.75	
	1000 MHz @ 50	-2.00	-3.25	-2.01		-0.75	
	1000 MHz @ 55	-2.00	-3.25	-2.04		-0.75	
	4000 MHz @ 40	-2.00	-3.25	-2.19		-0.75	
	4000 MHz @ 50	-2.00	-3.25	-2.15		-0.75	
	4000 MHz @ 55	-2.00	-3.25	-2.13		-0.75	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

Accredited for compliance with ISO/IEC 17025 - Calibration

NATA Accredited Laboratory Number 116.
Site Number 109

TRcalibration

NATA ACCREDITED FOR TECHNICAL COMPETENCE

TEST RESULTS

Attachment A for Report Number: NC 19.36245

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
9.3	Frequency Response						
	@ -30 dBm	(dB)	(dB)	(dB)	(dB)	(dB)	
	Att. Level/dB						
	10 MHz @ 5	-30.00	-31.25	-30.11		-28.75	
	10 MHz @ 10	-30.00	-31.25	-30.26		-28.75	
	10 MHz @ 20	-30.00	-31.25	-30.06		-28.75	
	1000 MHz @ 5	-30.00	-31.25	-30.09		-28.75	
	1000 MHz @ 10	-30.00	-31.25	-30.04		-28.75	
	1000 MHz @ 20	-30.00	-31.25	-30.09		-28.75	
	4000 MHz @ 5	-30.00	-31.25	-30.21		-28.75	
	4000 MHz @ 10	-30.00	-31.25	-30.18		-28.75	
	4000 MHz @ 20	-30.00	-31.25	-30.24		-28.75	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

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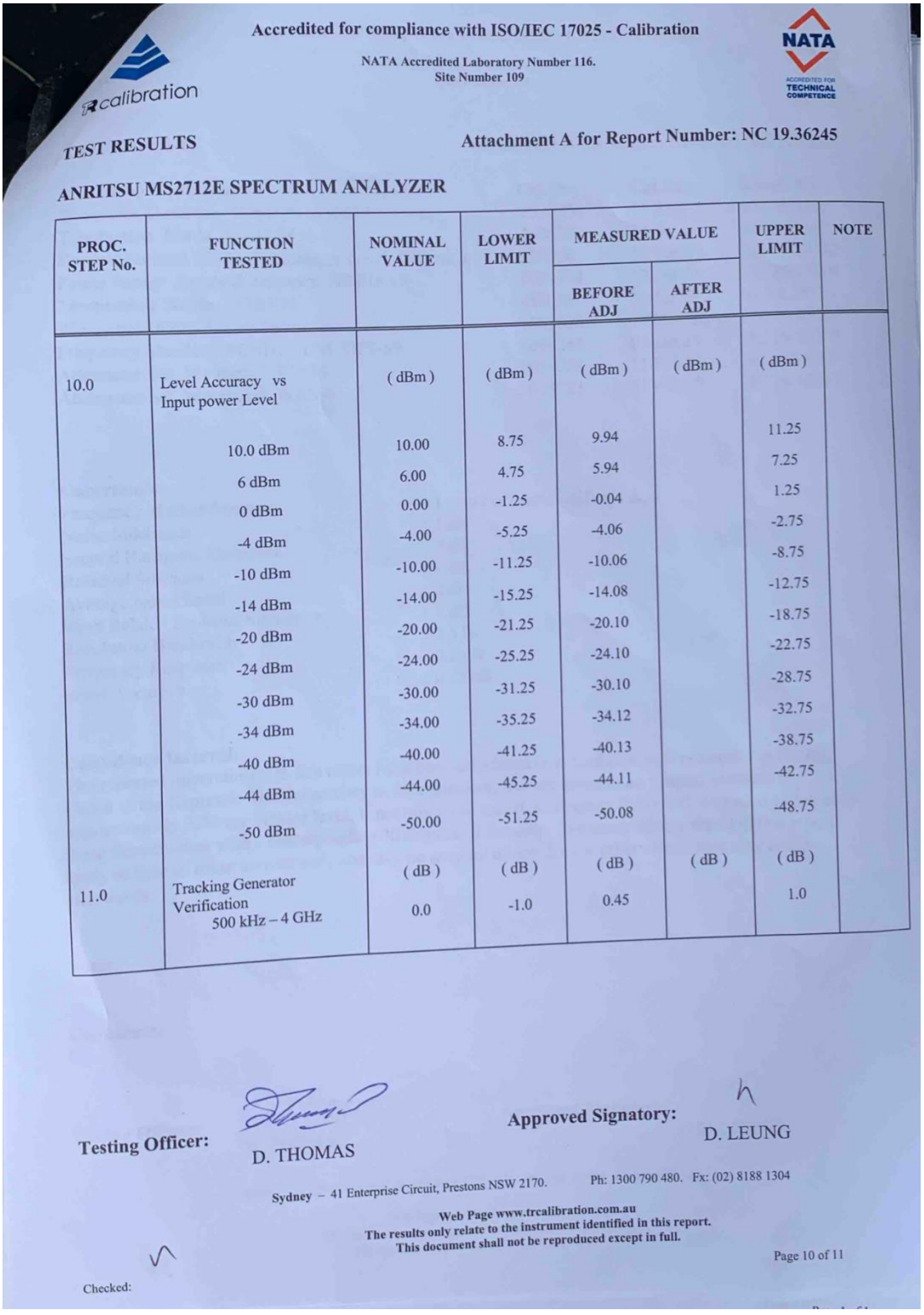
Checked:



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NATA Accredited Laboratory Number 116.
Site Number 109

TRcalibration

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TEST RESULTS — **Attachment A for Report Number: NC 19.36245**

ANRITSU MS2712E SPECTRUM ANALYZER

PROC. STEP No.	FUNCTION TESTED	NOMINAL VALUE	LOWER LIMIT	MEASURED VALUE		UPPER LIMIT	NOTE
				BEFORE ADJ	AFTER ADJ		
10.0	Level Accuracy vs Input power Level	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)	
	10.0 dBm	10.00	8.75	9.94		11.25	
	6 dBm	6.00	4.75	5.94		7.25	
	0 dBm	0.00	-1.25	-0.04		1.25	
	-4 dBm	-4.00	-5.25	-4.06		-2.75	
	-10 dBm	-10.00	-11.25	-10.06		-8.75	
	-14 dBm	-14.00	-15.25	-14.08		-12.75	
	-20 dBm	-20.00	-21.25	-20.10		-18.75	
	-24 dBm	-24.00	-25.25	-24.10		-22.75	
	-30 dBm	-30.00	-31.25	-30.10		-28.75	
	-34 dBm	-34.00	-35.25	-34.12		-32.75	
	-40 dBm	-40.00	-41.25	-40.13		-38.75	
	-44 dBm	-44.00	-45.25	-44.11		-42.75	
	-50 dBm	-50.00	-51.25	-50.08		-48.75	
11.0	Tracking Generator Verification 500 kHz – 4 GHz	(dB) 0.0	(dB) -1.0	(dB) 0.45	(dB)	(dB) 1.0	

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Sydney – 41 Enterprise Circuit, Prestons NSW 2170. Ph: 1300 790 480. Fx: (02) 8188 1304

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TEST RESULTS

Attachment A for Report Number: NC 19.36245

Measuring Equipment	Cal ID	Cal Due	Report No
Waveform Generator Keysight 33622A	1037035	13 Aug 20	NC 19.32062
Termination Narda 377BNM	450038	21 Jan 20	NC 18.35576
Hewlett Packard 3335A Synthesizer/Level Generator	330360	18 Feb 20	NC 19.30412
Power Sensor Rohde & Schwarz NRP18AN	1039714	17 Jan 21	NC 19.35804
Termination Narda 377BNM	450038	21 Jan 20	NC18.35576
Weinschel 1870A Power Splitter	1033318	19 Nov 20	NC 19.35803
Frequency Standard PENDULUM GPS-89	1040263	01 Jan 21	NC 19.36308
Attenuator Set Weinschel WA44	1039728	11 Feb 20	NC18.25588
Attenuator Set Weinschel WAS-6	1039723	11 Feb 20	NC 18.35587

Uncertainty:

Frequency Marker Accuracy	: ± 1 count of least significant digit
Noise Sidebands	: ± 2 dB
Second Harmonic Distortion	: ± 2 dB
Residual Spurious	: ± 1 dB
Average Noise Level	: ± 2 dB
Input Related Spurious Signals	: ± 1 dB
Resolution Bandwidth	: ± 2.5 %
Frequency Response	: ± 0.2 dB
Level Accuracy	: ± 0.15 dB

Confidence Interval:
The reported uncertainties in this report have been calculated in accordance with principles in the ISO Guide to the Expression of Uncertainty in Measurement, and are given as an interval estimate at approximately 95% confidence level. If not otherwise stated, a coverage factor k=2 was used to calculate these uncertainties with a corresponding 30 degrees of freedom. The uncertainties stated in this report apply at time of measurement only and take no account of any drift or other effects that may apply afterwards.

Notes:
Nil.

Comments:
Nil.

Testing Officer: D. THOMAS

Approved Signatory: D. LEUNG

Checked:

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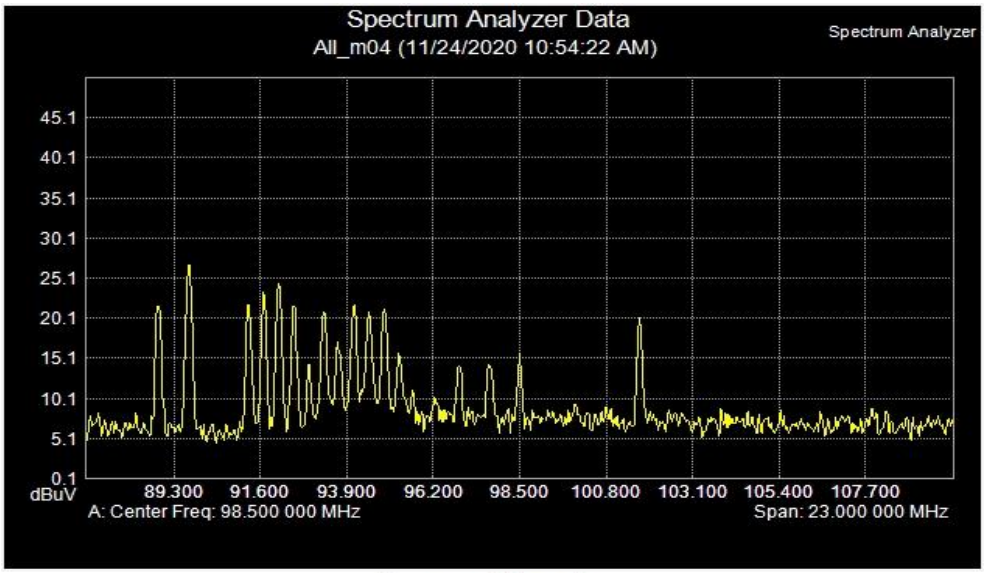
APPENDIX F RADIO STRENGTH SIGNAL SURVEY RESULTS

M04

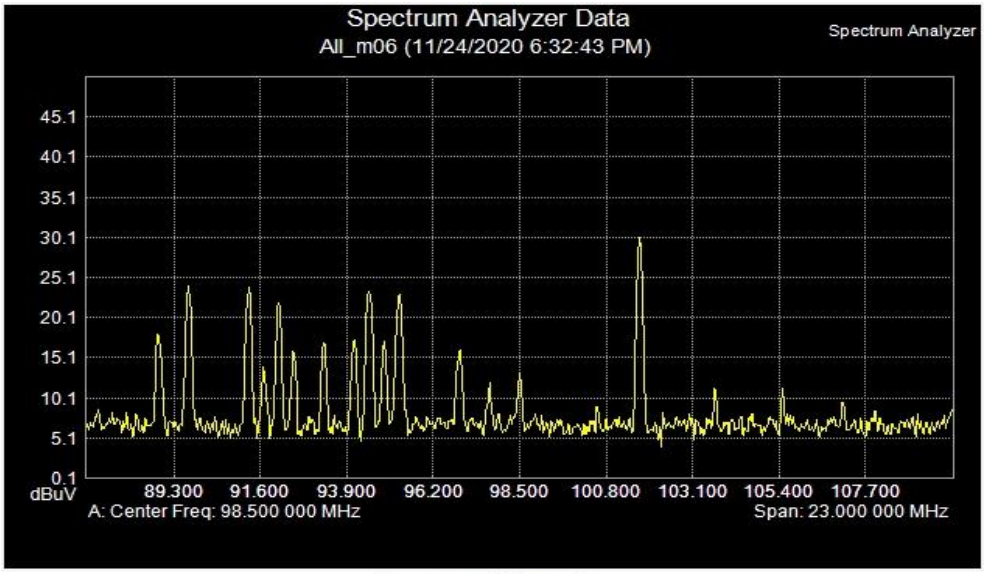


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 20
VBW	30.0 kHz	GPS Latitude	S 38 6 45
Detection	RMS	GPS Fix Time	11 23 2020 23 54 42

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.38	0.011
1	89.7	28.16	0.011
2	91.3	19.65	0.011
3	92.1	24.98	0.009
4	92.9	12.95	0.007
5	93.7	17.71	0.007
6	94.5	22.76	0.009
7	95.3	21.18	0.011
8	96.9	18.25	0.011
9	97.7	17.24	0.009
10	98.5	18.8	0.007
11	99.3	8.05	0.007
12	101.7	22.6	0.013
13	103.7	7.57	0.016
14	107.9	5.77	0.011

M06

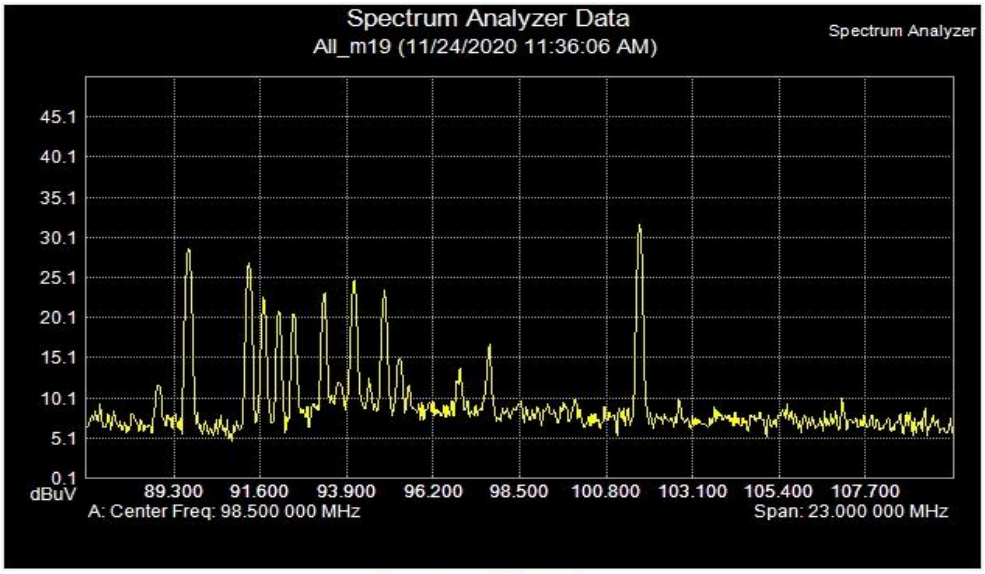


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 19
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 07 33 02

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	26.02	0.011
2	91.3	25.29	0.011
3	92.1	21.99	0.009
4	92.9	7.41	0.007
5	93.7	6.16	0.007
6	94.5	27.08	0.009
7	95.3	27.56	0.011
8	96.9	17.55	0.011
9	97.7	9.39	0.009
10	98.5	13.07	0.007
11	99.3	6.22	0.007
12	101.7	31.84	0.013
13	103.7	9.74	0.016
14	107.9	11.02	0.011

M19

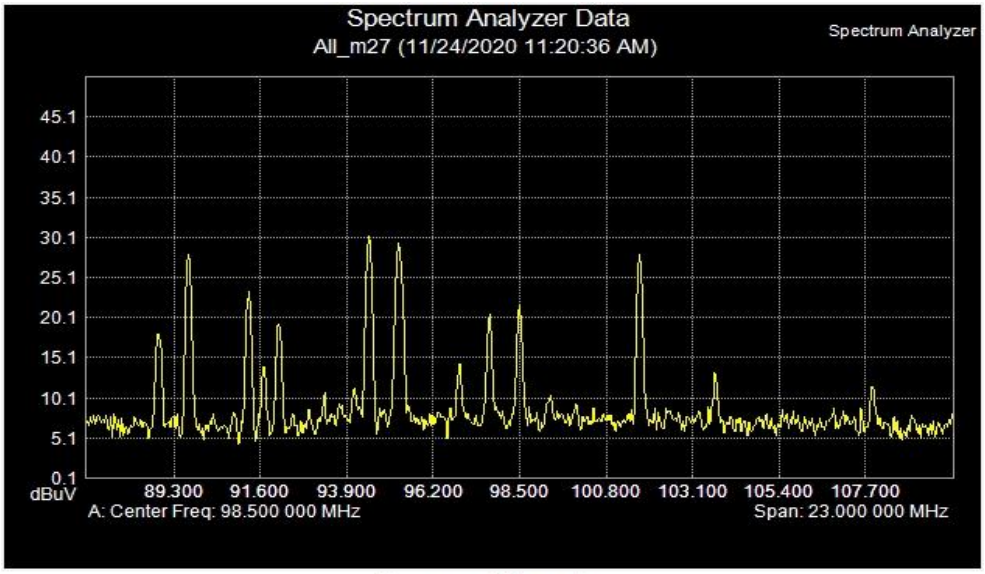


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 14
VBW	30.0 kHz	GPS Latitude	S 38 6 25
Detection	RMS	GPS Fix Time	11 24 2020 00 36 25

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.91	0.011
1	89.7	30.66	0.011
2	91.3	24.7	0.011
3	92.1	22.29	0.009
4	92.9	7	0.007
5	93.7	9.53	0.007
6	94.5	9.96	0.009
7	95.3	16.14	0.011
8	96.9	15.39	0.011
9	97.7	17.49	0.009
10	98.5	12.37	0.007
11	99.3	7.58	0.007
12	101.7	33.33	0.013
13	103.7	7.27	0.016
14	107.9	8.25	0.011

M27

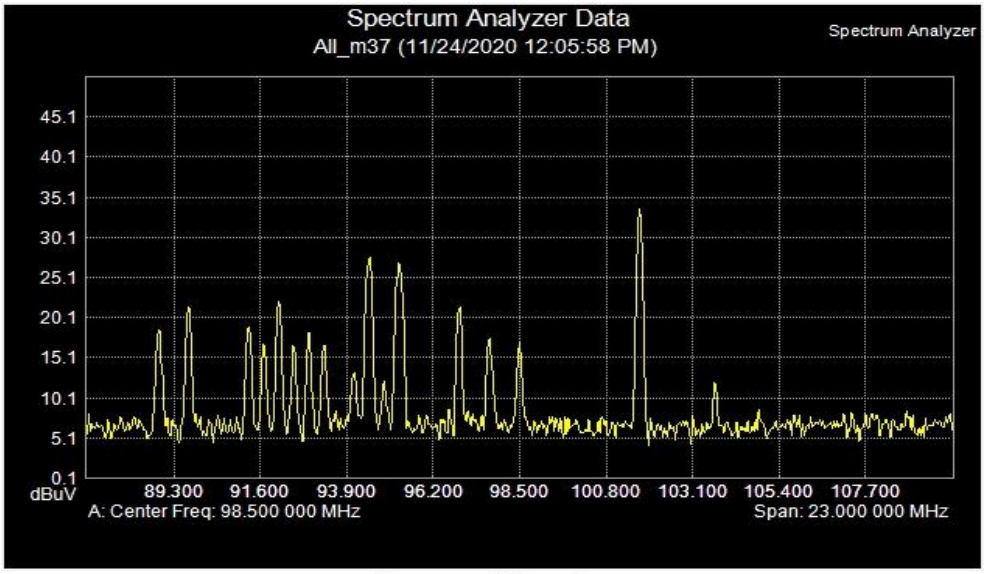


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 39
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 00 20 55

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.28	0.011
1	89.7	30.13	0.011
2	91.3	24.4	0.011
3	92.1	18.6	0.009
4	92.9	9.52	0.007
5	93.7	10.98	0.007
6	94.5	30.91	0.009
7	95.3	30.14	0.011
8	96.9	20.04	0.011
9	97.7	24.38	0.009
10	98.5	24.32	0.007
11	99.3	13.87	0.007
12	101.7	29.15	0.013
13	103.7	14.43	0.016
14	107.9	12.48	0.011

M37

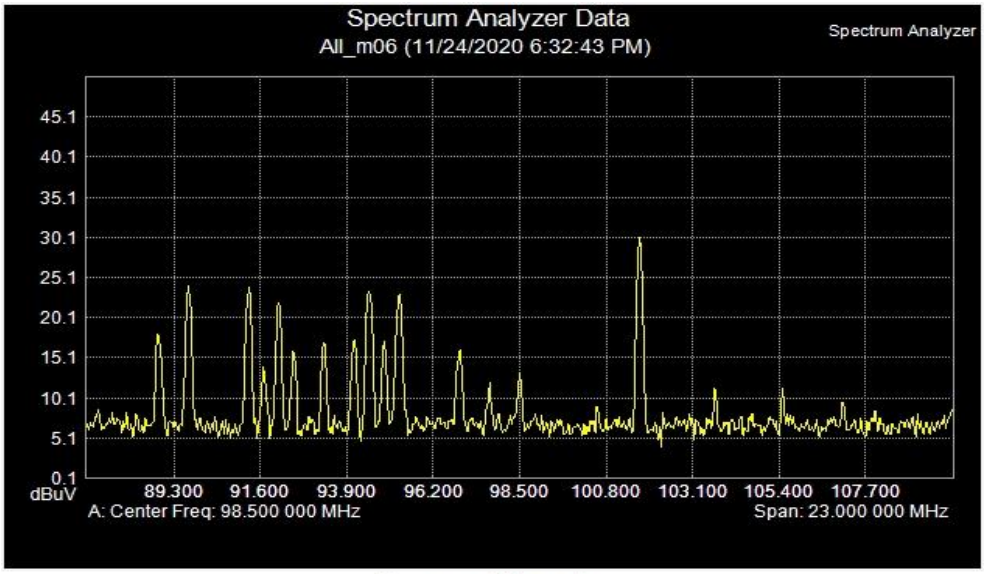


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 18 56
VBW	30.0 kHz	GPS Latitude	S 38 6 46
Detection	RMS	GPS Fix Time	11 24 2020 01 06 17

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.61	0.011
1	89.7	14.9	0.011
2	91.3	16.22	0.011
3	92.1	21.06	0.009
4	92.9	19.18	0.007
5	93.7	11.7	0.007
6	94.5	26.52	0.009
7	95.3	26.6	0.011
8	96.9	17.51	0.011
9	97.7	8.36	0.009
10	98.5	7.58	0.007
11	99.3	8.2	0.007
12	101.7	34.58	0.013
13	103.7	15.16	0.016
14	107.9	7.6	0.011

M43

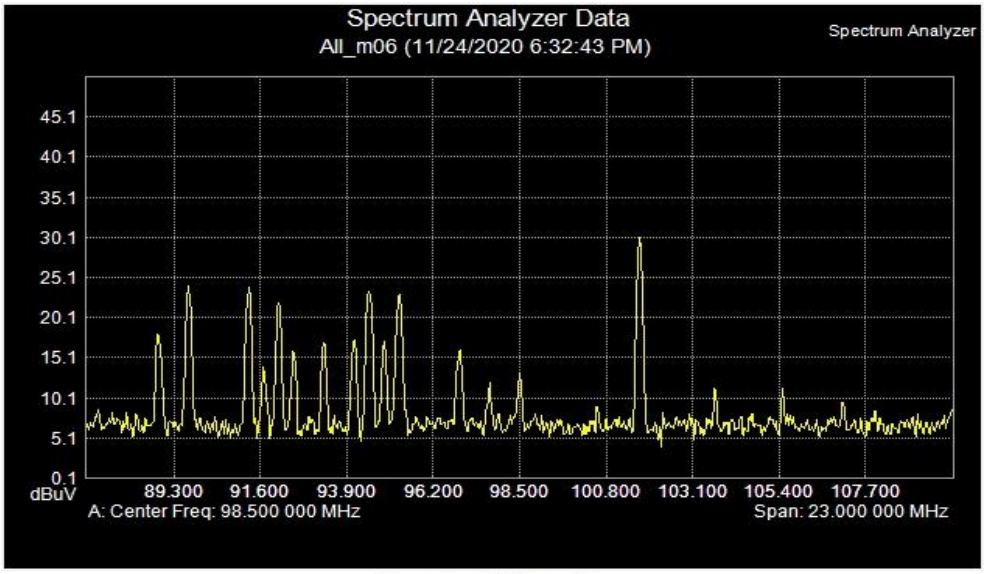


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 19
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 07 33 02

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	26.02	0.011
2	91.3	25.29	0.011
3	92.1	21.99	0.009
4	92.9	7.41	0.007
5	93.7	6.16	0.007
6	94.5	27.08	0.009
7	95.3	27.56	0.011
8	96.9	17.55	0.011
9	97.7	9.39	0.009
10	98.5	13.07	0.007
11	99.3	6.22	0.007
12	101.7	31.84	0.013
13	103.7	9.74	0.016
14	107.9	11.02	0.011

M45

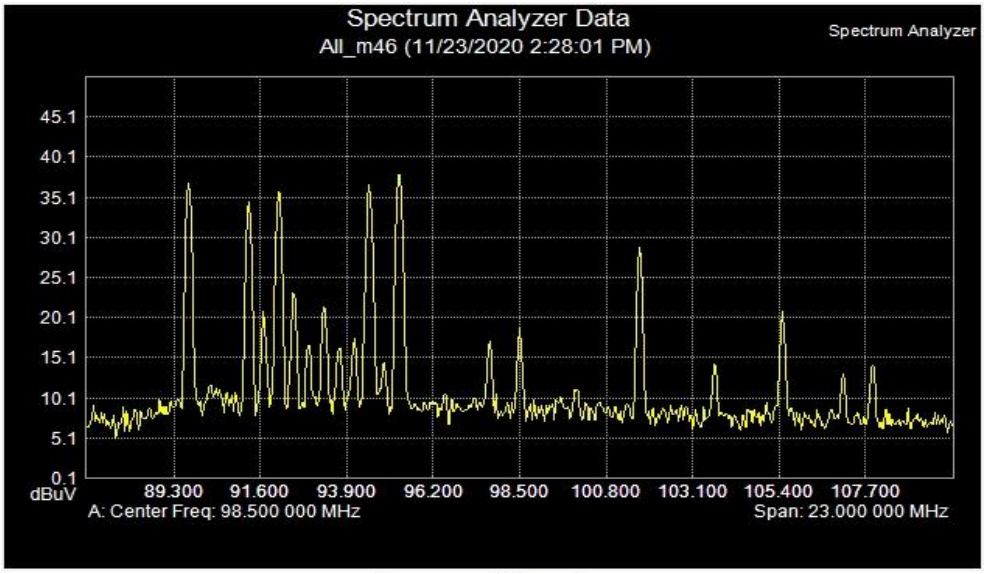


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 19
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 07 33 02

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	26.02	0.011
2	91.3	25.29	0.011
3	92.1	21.99	0.009
4	92.9	7.41	0.007
5	93.7	6.16	0.007
6	94.5	27.08	0.009
7	95.3	27.56	0.011
8	96.9	17.55	0.011
9	97.7	9.39	0.009
10	98.5	13.07	0.007
11	99.3	6.22	0.007
12	101.7	31.84	0.013
13	103.7	9.74	0.016
14	107.9	11.02	0.011

M46

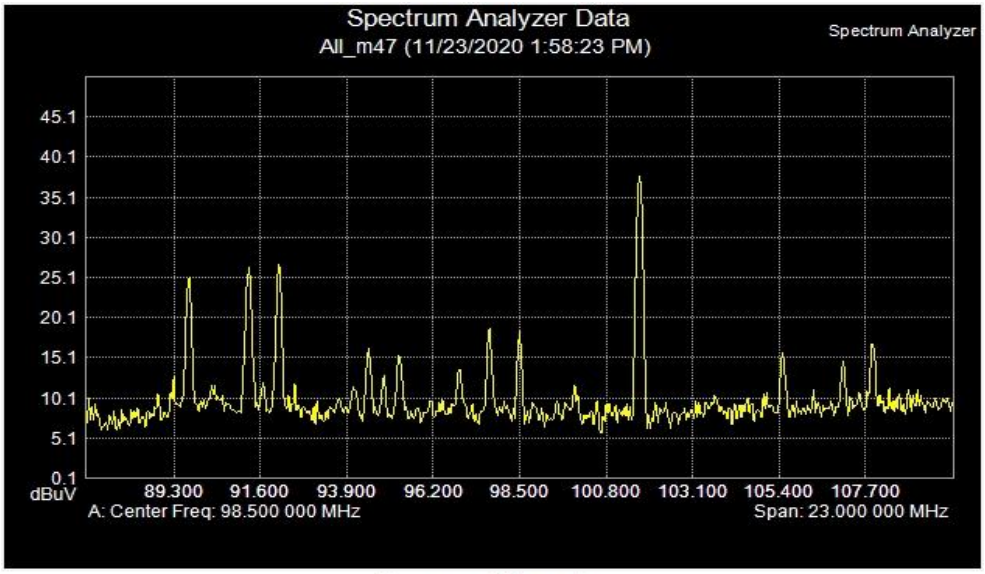


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 18 53
VBW	30.0 kHz	GPS Latitude	S 38 10 20
Detection	RMS	GPS Fix Time	11 23 2020 03 28 20

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.68	0.011
1	89.7	37.34	0.011
2	91.3	34.01	0.011
3	92.1	36.18	0.009
4	92.9	17.87	0.007
5	93.7	17.48	0.007
6	94.5	36.68	0.009
7	95.3	39.72	0.011
8	96.9	13.44	0.011
9	97.7	15.47	0.009
10	98.5	19.62	0.007
11	99.3	8.91	0.007
12	101.7	31.76	0.013
13	103.7	13.14	0.016
14	107.9	15.71	0.011

M47

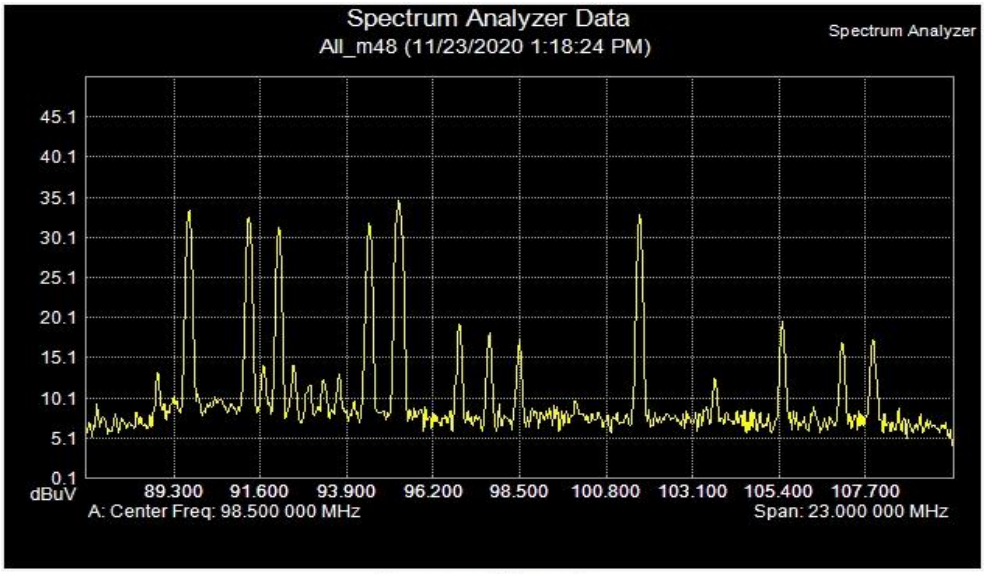


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 23
VBW	30.0 kHz	GPS Latitude	S 38 9 19
Detection	RMS	GPS Fix Time	11 23 2020 02 58 41

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.85	0.011
1	89.7	24.92	0.011
2	91.3	27.59	0.011
3	92.1	26.75	0.009
4	92.9	8.49	0.007
5	93.7	8.57	0.007
6	94.5	13.43	0.009
7	95.3	12.71	0.011
8	96.9	9.74	0.011
9	97.7	17.93	0.009
10	98.5	17.91	0.007
11	99.3	8.58	0.007
12	101.7	38.1	0.013
13	103.7	9.14	0.016
14	107.9	16.07	0.011

M48

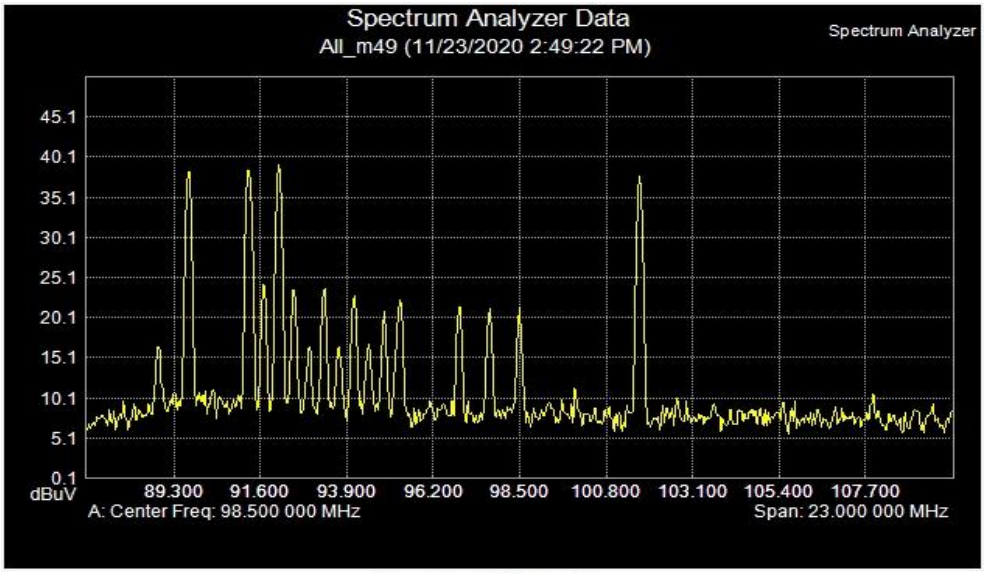


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 32
VBW	30.0 kHz	GPS Latitude	S 38 9 5
Detection	RMS	GPS Fix Time	11 23 2020 02 18 43

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.91	0.011
1	89.7	33.7	0.011
2	91.3	33.66	0.011
3	92.1	32.18	0.009
4	92.9	11.07	0.007
5	93.7	10.6	0.007
6	94.5	31.27	0.009
7	95.3	34.25	0.011
8	96.9	19.57	0.011
9	97.7	16.41	0.009
10	98.5	16.22	0.007
11	99.3	5.77	0.007
12	101.7	34.82	0.013
13	103.7	11.54	0.016
14	107.9	17.39	0.011

M49

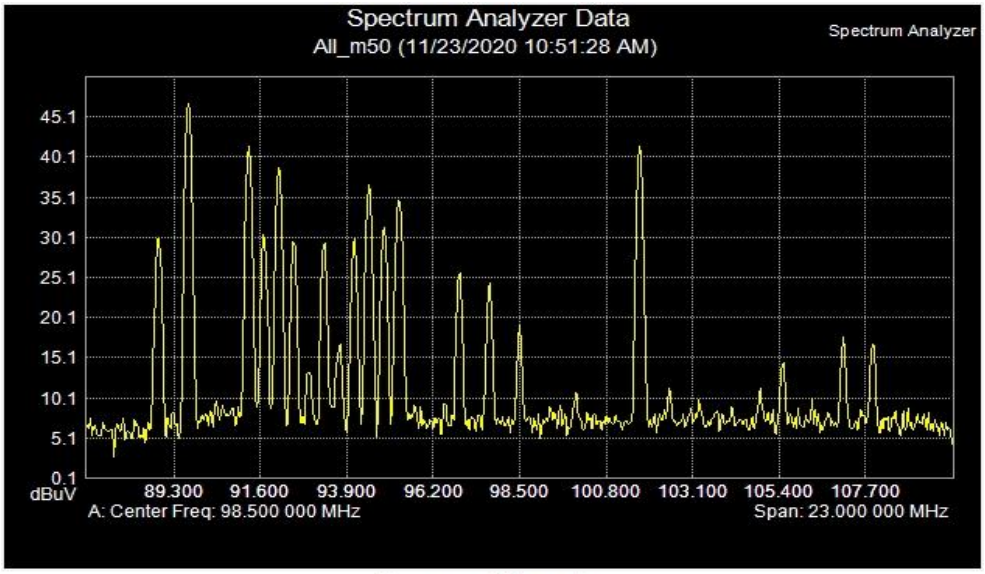


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 18 40
VBW	30.0 kHz	GPS Latitude	S 38 10 54
Detection	RMS	GPS Fix Time	11 23 2020 03 49 40

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.93	0.011
1	89.7	38.52	0.011
2	91.3	38.66	0.011
3	92.1	39.11	0.009
4	92.9	16.51	0.007
5	93.7	16.1	0.007
6	94.5	19.38	0.009
7	95.3	22.02	0.011
8	96.9	22.46	0.011
9	97.7	21.35	0.009
10	98.5	22.26	0.007
11	99.3	9.82	0.007
12	101.7	37.42	0.013
13	103.7	10.53	0.016
14	107.9	12.39	0.011

M50

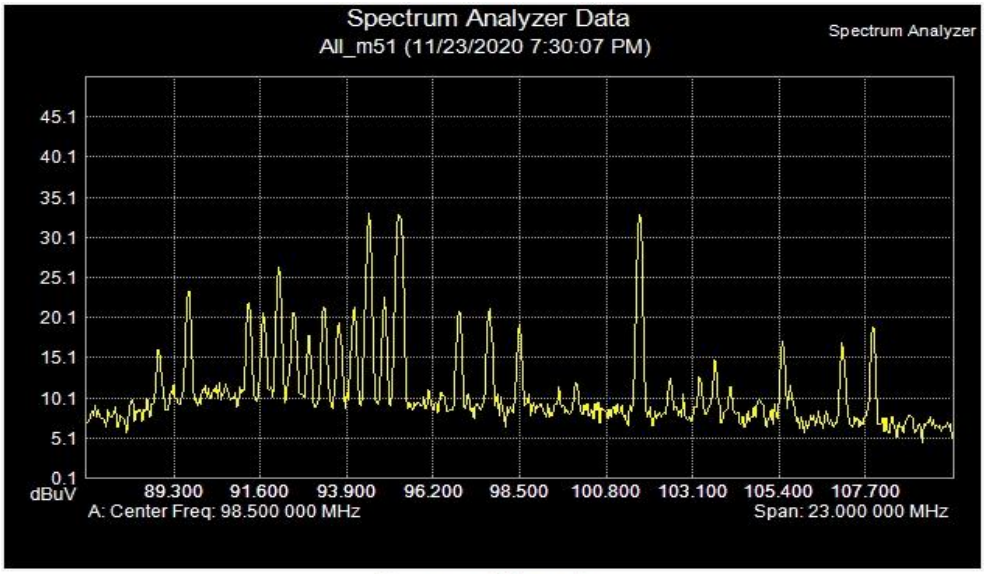


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 4
VBW	30.0 kHz	GPS Latitude	S 38 12 3
Detection	RMS	GPS Fix Time	11 22 2020 23 51 47

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.19	0.011
1	89.7	46.65	0.011
2	91.3	39.9	0.011
3	92.1	35.93	0.009
4	92.9	14.74	0.007
5	93.7	18.07	0.007
6	94.5	36.09	0.009
7	95.3	33.76	0.011
8	96.9	25.45	0.011
9	97.7	24.31	0.009
10	98.5	19.24	0.007
11	99.3	7.25	0.007
12	101.7	41.18	0.013
13	103.7	8.22	0.016
14	107.9	19.87	0.011

M51

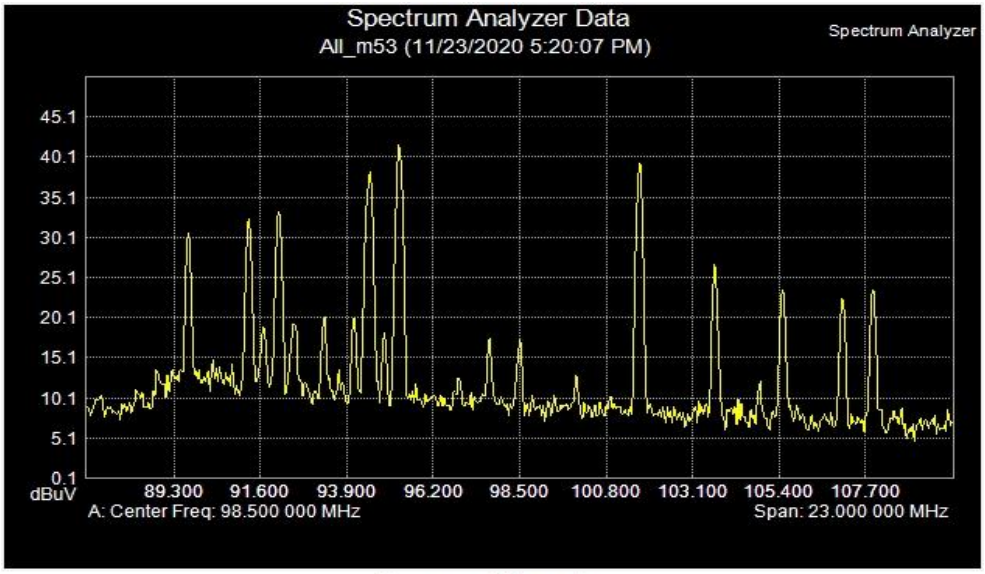


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 16
VBW	30.0 kHz	GPS Latitude	S 38 5 53
Detection	RMS	GPS Fix Time	11 23 2020 08 30 27

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	9	0.011
1	89.7	21.38	0.011
2	91.3	25.24	0.011
3	92.1	27.58	0.009
4	92.9	19.15	0.007
5	93.7	21.14	0.007
6	94.5	35.25	0.009
7	95.3	36.03	0.011
8	96.9	22.71	0.011
9	97.7	22.33	0.009
10	98.5	21.6	0.007
11	99.3	9.87	0.007
12	101.7	33.01	0.013
13	103.7	16.01	0.016
14	107.9	19.07	0.011

M53

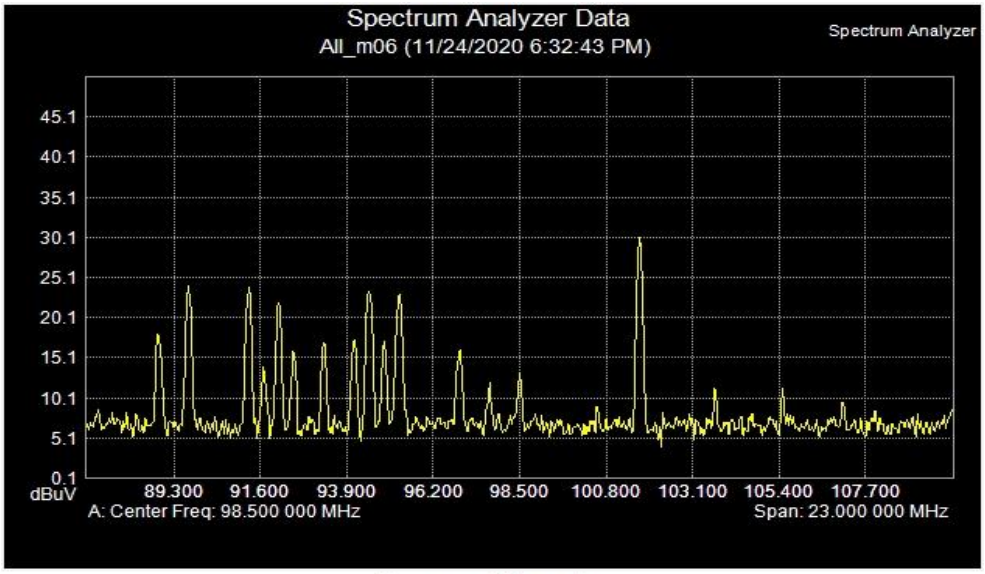


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 29
VBW	30.0 kHz	GPS Latitude	S 38 7 50
Detection	RMS	GPS Fix Time	11 23 2020 06 20 25

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	9.54	0.011
1	89.7	31.3	0.011
2	91.3	31.47	0.011
3	92.1	32.73	0.009
4	92.9	11.05	0.007
5	93.7	12.83	0.007
6	94.5	39.89	0.009
7	95.3	43	0.011
8	96.9	9.26	0.011
9	97.7	17.16	0.009
10	98.5	18.14	0.007
11	99.3	10.04	0.007
12	101.7	38.67	0.013
13	103.7	27.09	0.016
14	107.9	25.09	0.011

M54

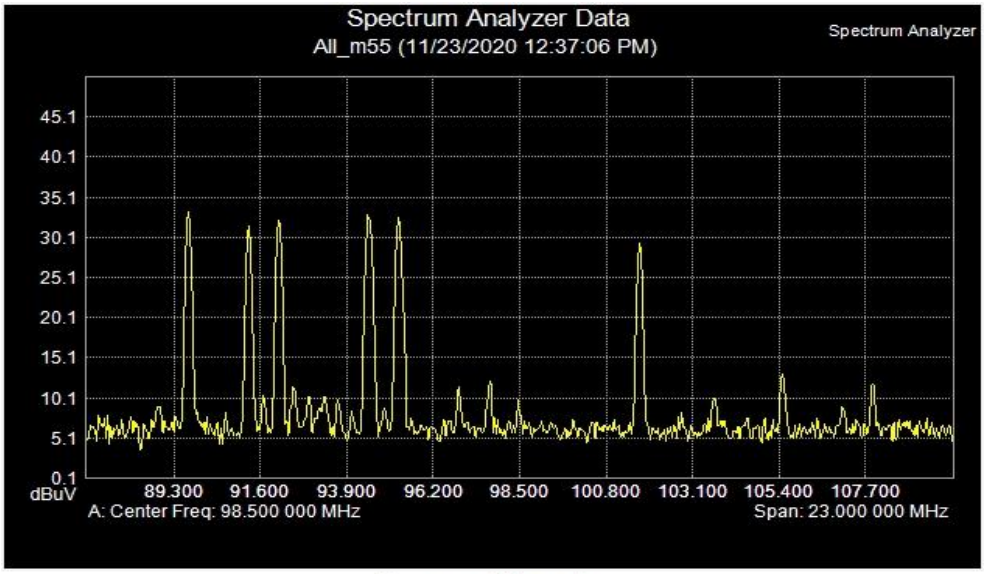


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 19
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 07 33 02

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.28	0.011
1	89.7	23.65	0.011
2	91.3	26.53	0.011
3	92.1	25.77	0.009
4	92.9	9.42	0.007
5	93.7	7.35	0.007
6	94.5	27.62	0.009
7	95.3	24.23	0.011
8	96.9	14.87	0.011
9	97.7	19.29	0.009
10	98.5	19.99	0.007
11	99.3	8.86	0.007
12	101.7	27.33	0.013
13	103.7	9.94	0.016
14	107.9	7.32	0.011

M55

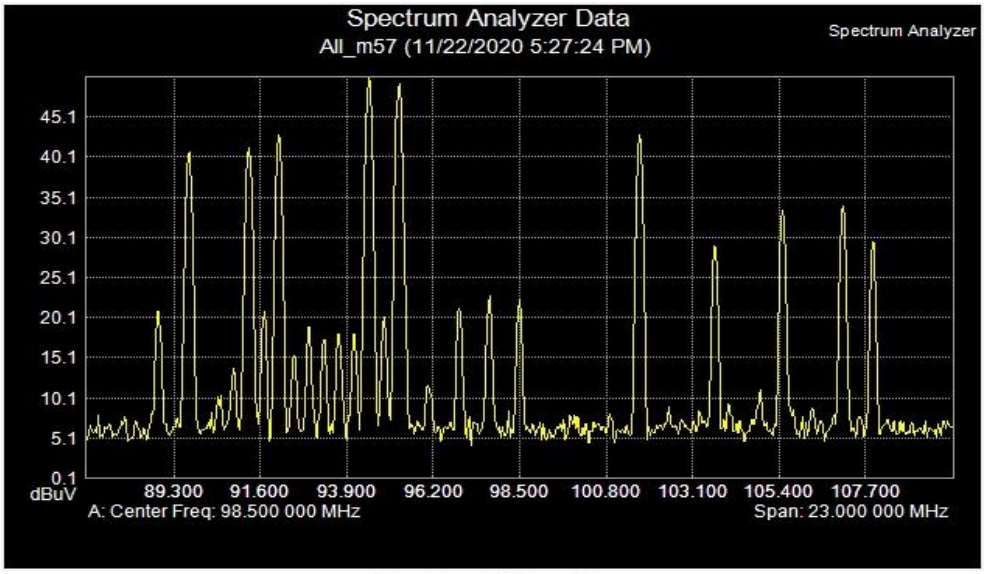


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 17 38
VBW	30.0 kHz	GPS Latitude	S 38 8 52
Detection	RMS	GPS Fix Time	11 23 2020 01 37 25

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.73	0.011
1	89.7	32.8	0.011
2	91.3	30.84	0.011
3	92.1	31.35	0.009
4	92.9	11.34	0.007
5	93.7	10.14	0.007
6	94.5	30.45	0.009
7	95.3	31.3	0.011
8	96.9	9.93	0.011
9	97.7	11.48	0.009
10	98.5	8.03	0.007
11	99.3	6.27	0.007
12	101.7	30.1	0.013
13	103.7	9.33	0.016
14	107.9	13.39	0.011

M57

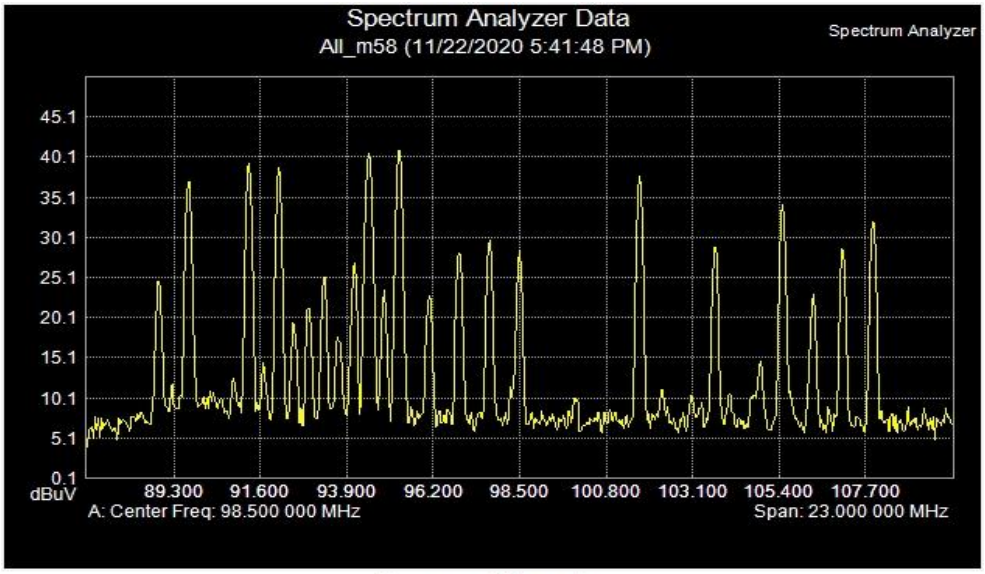


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 45
VBW	30.0 kHz	GPS Latitude	S 38 9 45
Detection	RMS	GPS Fix Time	11 22 2020 06 27 42

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.08	0.011
1	89.7	41.42	0.011
2	91.3	42.28	0.011
3	92.1	43.22	0.009
4	92.9	18.28	0.007
5	93.7	17.45	0.007
6	94.5	49.63	0.009
7	95.3	48	0.011
8	96.9	21.82	0.011
9	97.7	23.32	0.009
10	98.5	23.13	0.007
11	99.3	7.21	0.007
12	101.7	43.87	0.013
13	103.7	30.1	0.016
14	107.9	30.86	0.011

M58

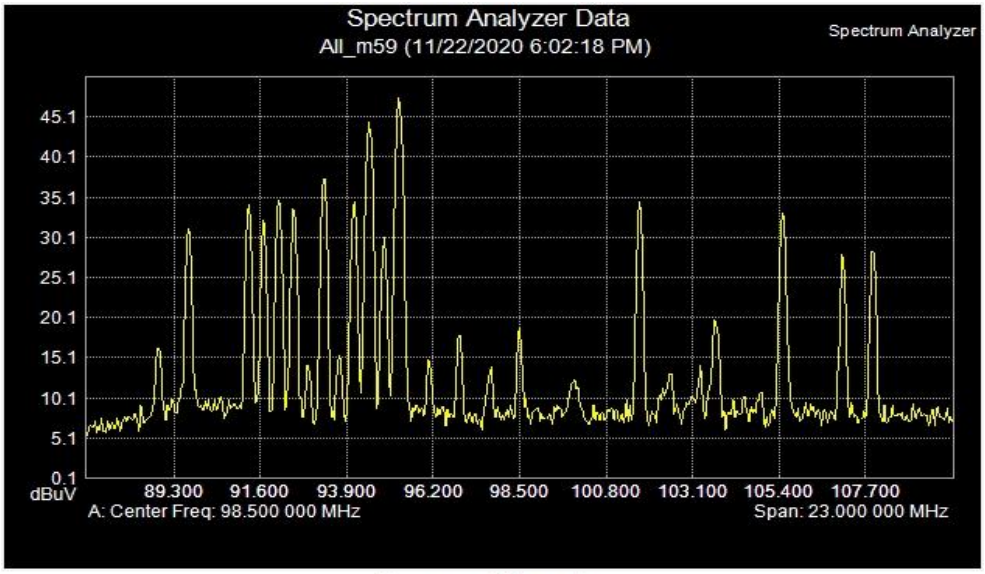


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 14
VBW	30.0 kHz	GPS Latitude	S 38 8 13
Detection	RMS	GPS Fix Time	11 22 2020 06 42 06

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.11	0.011
1	89.7	37.71	0.011
2	91.3	39.27	0.011
3	92.1	39.07	0.009
4	92.9	21.73	0.007
5	93.7	18.07	0.007
6	94.5	42.5	0.009
7	95.3	40.11	0.011
8	96.9	28.34	0.011
9	97.7	29.41	0.009
10	98.5	28.07	0.007
11	99.3	9.16	0.007
12	101.7	38.7	0.013
13	103.7	27.42	0.016
14	107.9	31.75	0.011

M59

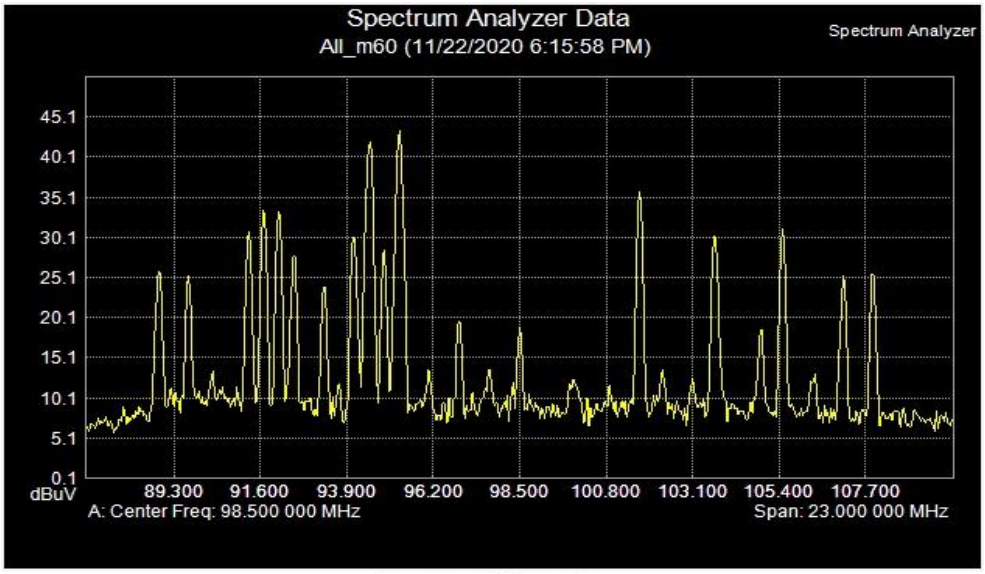


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 14
VBW	30.0 kHz	GPS Latitude	S 38 7 46
Detection	RMS	GPS Fix Time	11 22 2020 07 02 36

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.84	0.011
1	89.7	31.11	0.011
2	91.3	32.49	0.011
3	92.1	34.26	0.009
4	92.9	14.35	0.007
5	93.7	16.44	0.007
6	94.5	42.11	0.009
7	95.3	45.03	0.011
8	96.9	19.7	0.011
9	97.7	17.69	0.009
10	98.5	20.88	0.007
11	99.3	8.4	0.007
12	101.7	35.11	0.013
13	103.7	22.94	0.016
14	107.9	31.88	0.011

M60

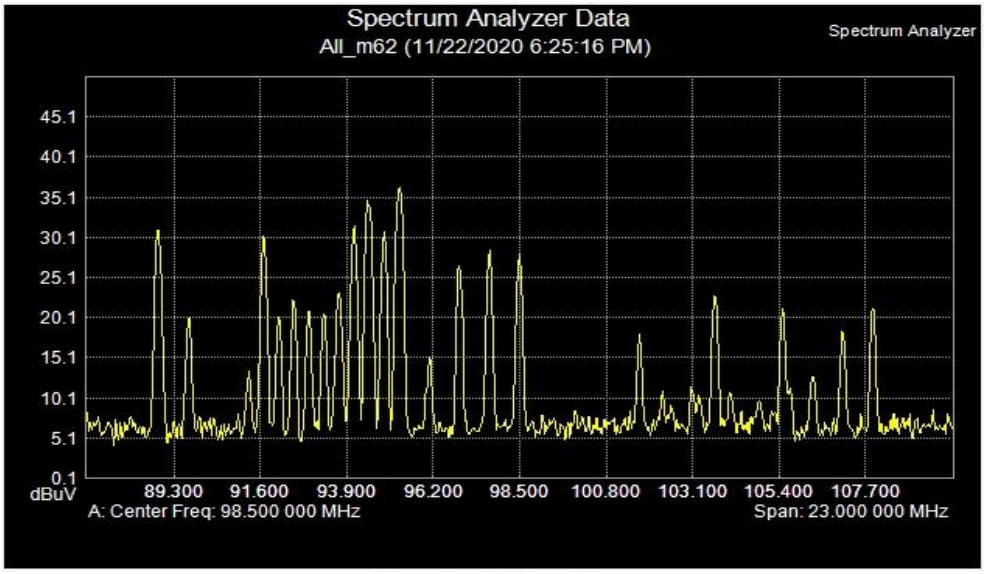


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 13
VBW	30.0 kHz	GPS Latitude	S 38 7 20
Detection	RMS	GPS Fix Time	11 22 2020 07 16 16

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.02	0.011
1	89.7	23.9	0.011
2	91.3	30.82	0.011
3	92.1	33.39	0.009
4	92.9	11.55	0.007
5	93.7	13.91	0.007
6	94.5	38.32	0.009
7	95.3	41.53	0.011
8	96.9	20.1	0.011
9	97.7	13.42	0.009
10	98.5	17.14	0.007
11	99.3	7.72	0.007
12	101.7	35.05	0.013
13	103.7	29.12	0.016
14	107.9	27.02	0.011

M62

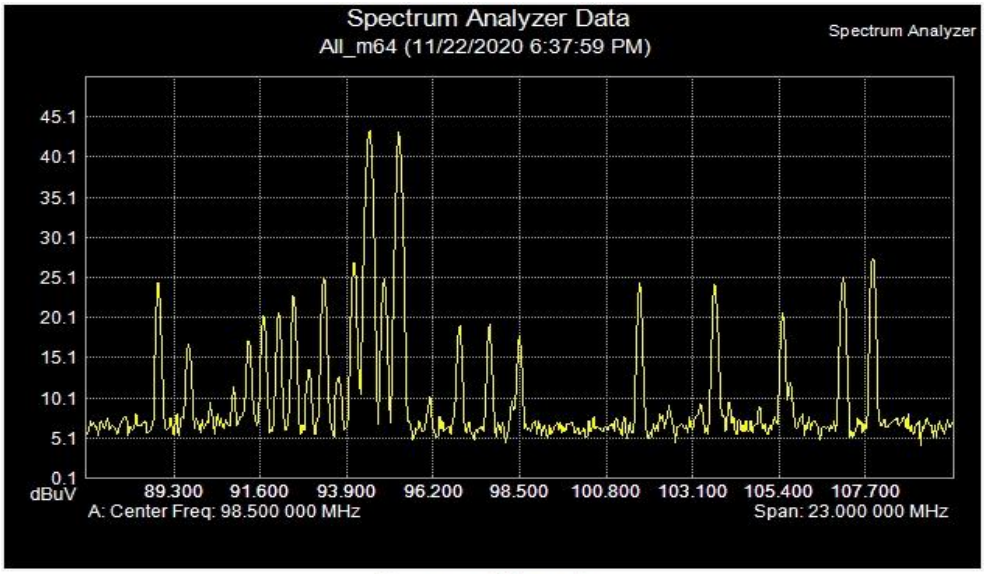


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 12
VBW	30.0 kHz	GPS Latitude	S 38 6 44
Detection	RMS	GPS Fix Time	11 22 2020 07 25 34

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.75	0.011
1	89.7	18.14	0.011
2	91.3	15.6	0.011
3	92.1	23.8	0.009
4	92.9	21.12	0.007
5	93.7	23.81	0.007
6	94.5	34.37	0.009
7	95.3	35.11	0.011
8	96.9	25.61	0.011
9	97.7	27.33	0.009
10	98.5	26.54	0.007
11	99.3	7.01	0.007
12	101.7	18.74	0.013
13	103.7	22.69	0.016
14	107.9	21.59	0.011

M64

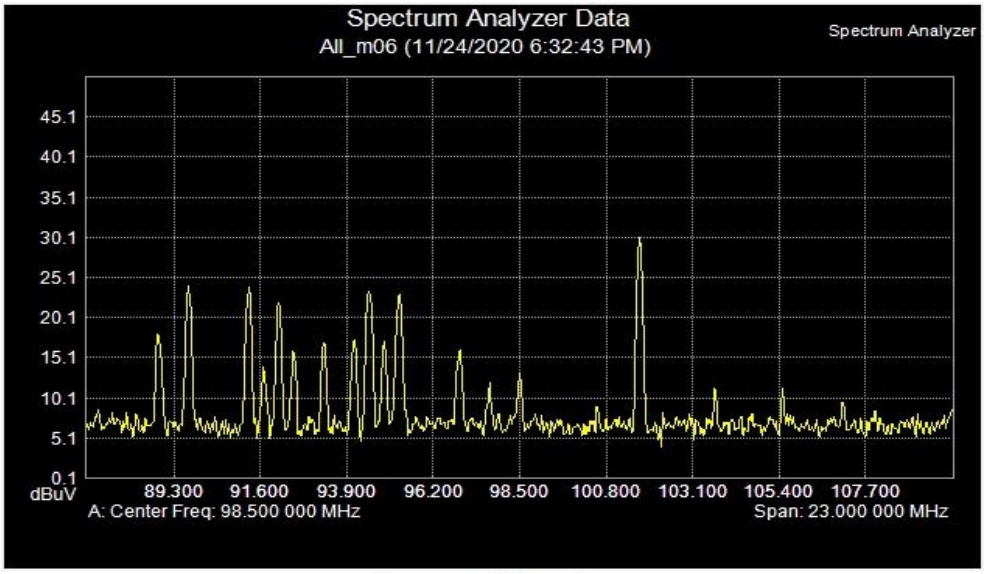


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 15
VBW	30.0 kHz	GPS Latitude	S 38 5 35
Detection	RMS	GPS Fix Time	11 22 2020 07 38 16

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.59	0.011
1	89.7	17.01	0.011
2	91.3	17.79	0.011
3	92.1	21.64	0.009
4	92.9	12.11	0.007
5	93.7	14.04	0.007
6	94.5	43.66	0.009
7	95.3	43.48	0.011
8	96.9	18.85	0.011
9	97.7	19.48	0.009
10	98.5	18.82	0.007
11	99.3	5.56	0.007
12	101.7	25.86	0.013
13	103.7	24.45	0.016
14	107.9	27.72	0.011

M66

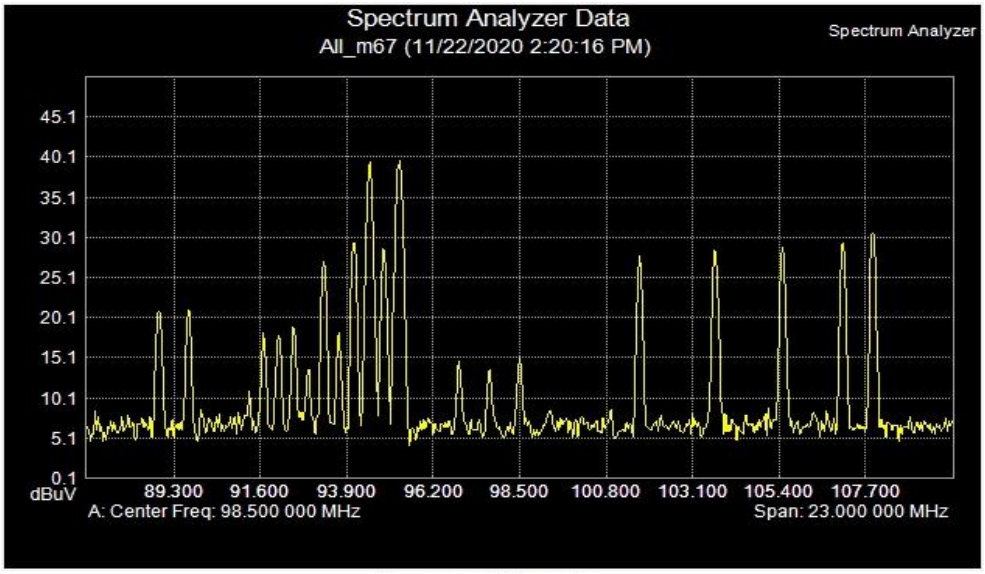


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 19
VBW	30.0 kHz	GPS Latitude	S 38 6 37
Detection	RMS	GPS Fix Time	11 24 2020 07 33 02

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	26.02	0.011
2	91.3	25.29	0.011
3	92.1	21.99	0.009
4	92.9	7.41	0.007
5	93.7	6.16	0.007
6	94.5	27.08	0.009
7	95.3	27.56	0.011
8	96.9	17.55	0.011
9	97.7	9.39	0.009
10	98.5	13.07	0.007
11	99.3	6.22	0.007
12	101.7	31.84	0.013
13	103.7	9.74	0.016
14	107.9	11.02	0.011

M67

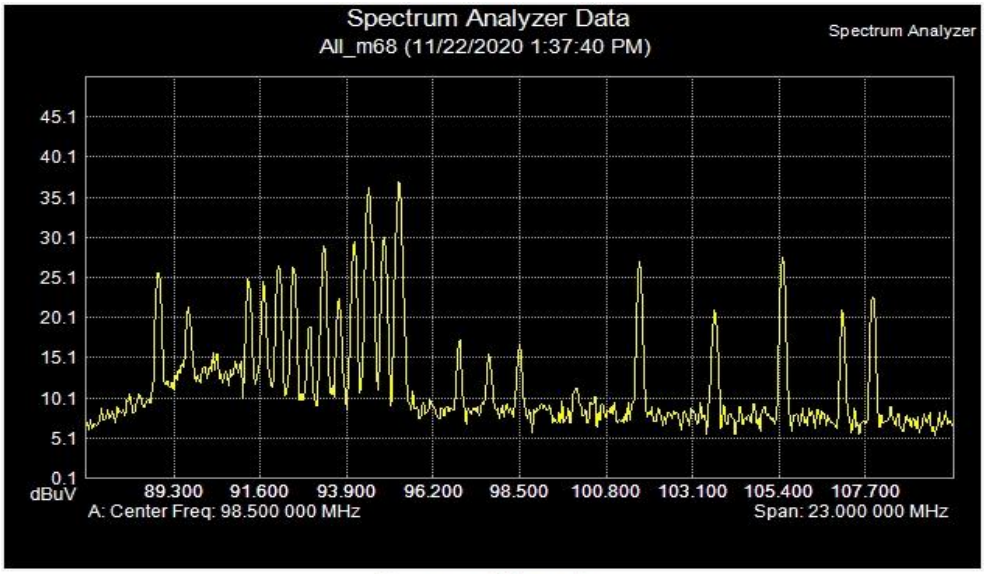


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 4
VBW	30.0 kHz	GPS Latitude	S 38 4 53
Detection	RMS	GPS Fix Time	11 22 2020 03 20 32

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.38	0.011
1	89.7	21.61	0.011
2	91.3	10.73	0.011
3	92.1	17.81	0.009
4	92.9	12.92	0.007
5	93.7	17.57	0.007
6	94.5	40.14	0.009
7	95.3	39.69	0.011
8	96.9	14.04	0.011
9	97.7	12.5	0.009
10	98.5	15.75	0.007
11	99.3	6.83	0.007
12	101.7	28.57	0.013
13	103.7	26.99	0.016
14	107.9	30.3	0.011

M68

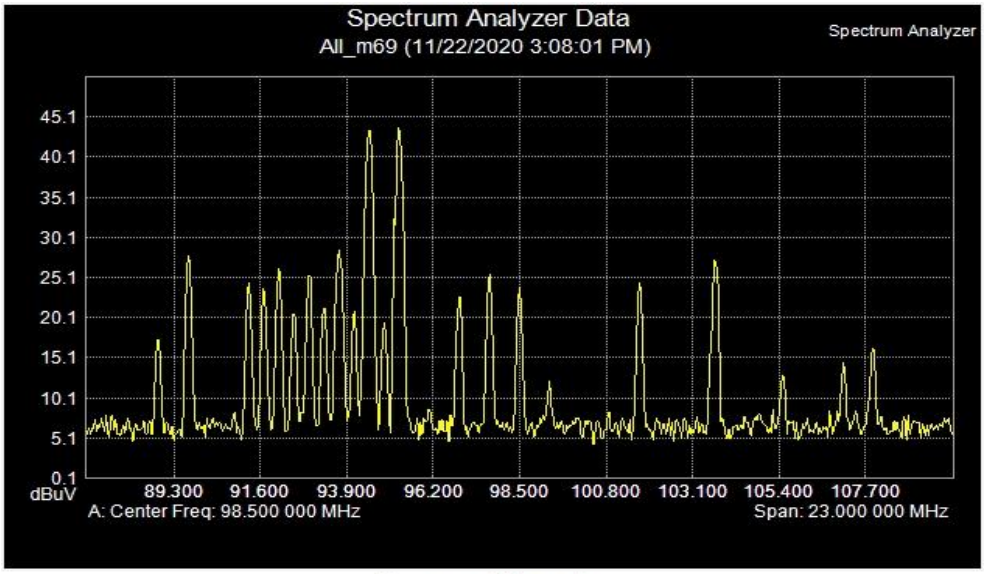


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 38
VBW	30.0 kHz	GPS Latitude	S 38 4 48
Detection	RMS	GPS Fix Time	11 22 2020 02 37 57

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.18	0.011
1	89.7	22.22	0.011
2	91.3	24.81	0.011
3	92.1	27.29	0.009
4	92.9	18.72	0.007
5	93.7	21.27	0.007
6	94.5	36.85	0.009
7	95.3	36.1	0.011
8	96.9	18	0.011
9	97.7	16.11	0.009
10	98.5	15.71	0.007
11	99.3	7.84	0.007
12	101.7	27.56	0.013
13	103.7	20.91	0.016
14	107.9	24.6	0.011

M69

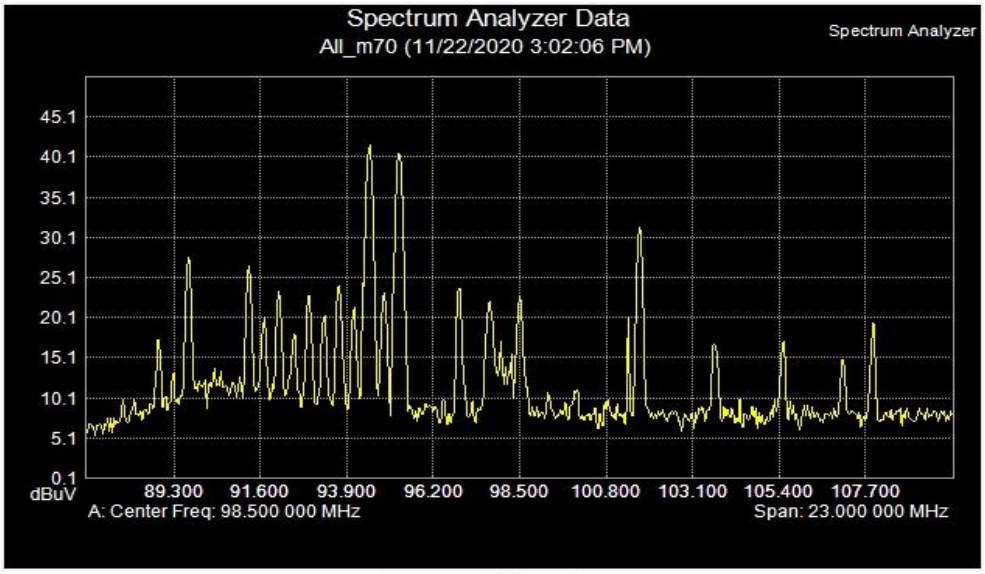


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 11
VBW	30.0 kHz	GPS Latitude	S 38 5 27
Detection	RMS	GPS Fix Time	11 22 2020 04 08 17

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.44	0.011
1	89.7	27.33	0.011
2	91.3	22.43	0.011
3	92.1	24.34	0.009
4	92.9	25.32	0.007
5	93.7	29.64	0.007
6	94.5	44.62	0.009
7	95.3	44.64	0.011
8	96.9	21.83	0.011
9	97.7	25.32	0.009
10	98.5	23.24	0.007
11	99.3	12.09	0.007
12	101.7	24.4	0.013
13	103.7	27.1	0.016
14	107.9	18.87	0.011

M70

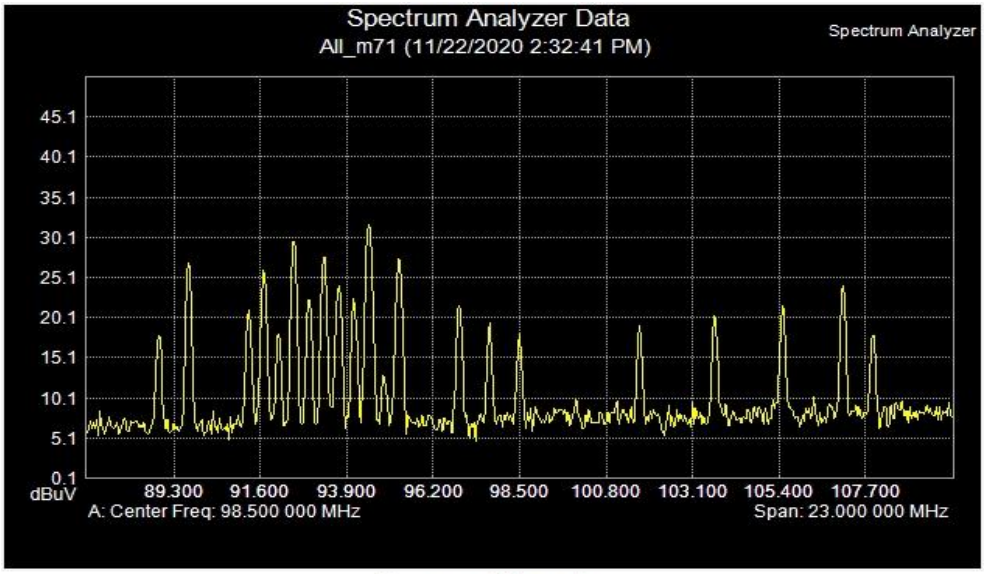


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 33
VBW	30.0 kHz	GPS Latitude	S 38 5 19
Detection	RMS	GPS Fix Time	11 22 2020 04 02 22

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.15	0.011
1	89.7	25.15	0.011
2	91.3	27.17	0.011
3	92.1	22.27	0.009
4	92.9	21.36	0.007
5	93.7	21.9	0.007
6	94.5	44.38	0.009
7	95.3	43.46	0.011
8	96.9	25.12	0.011
9	97.7	22.97	0.009
10	98.5	21.57	0.007
11	99.3	5.08	0.007
12	101.7	28.83	0.013
13	103.7	14.46	0.016
14	107.9	17.35	0.011

M71

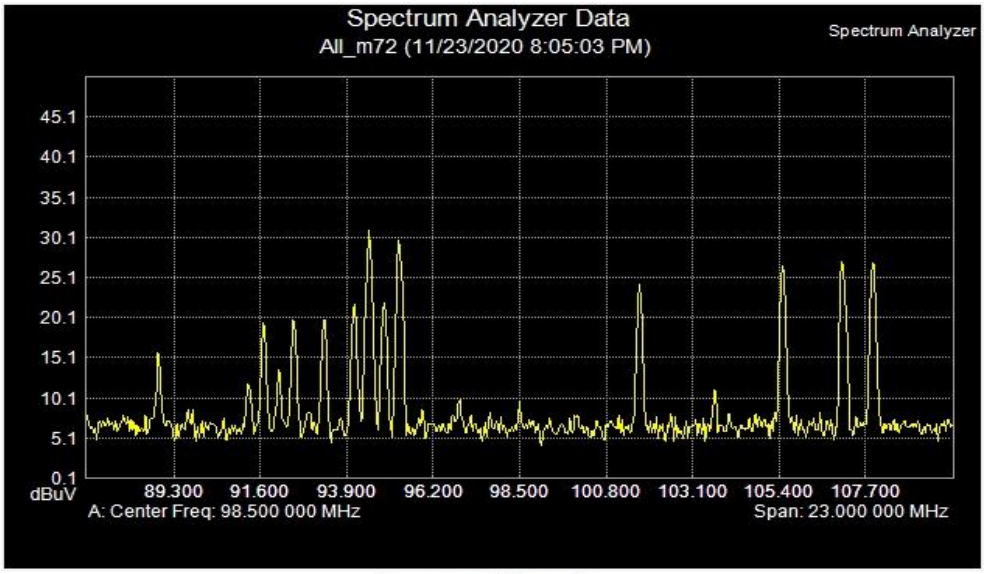


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 58
VBW	30.0 kHz	GPS Latitude	S 38 5 3
Detection	RMS	GPS Fix Time	11 22 2020 03 32 58

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.44	0.011
1	89.7	26.78	0.011
2	91.3	19.17	0.011
3	92.1	16.79	0.009
4	92.9	24.15	0.007
5	93.7	24.38	0.007
6	94.5	31.45	0.009
7	95.3	23.86	0.011
8	96.9	22.36	0.011
9	97.7	19.68	0.009
10	98.5	19.14	0.007
11	99.3	6.97	0.007
12	101.7	21.62	0.013
13	103.7	20.97	0.016
14	107.9	19.28	0.011

M72

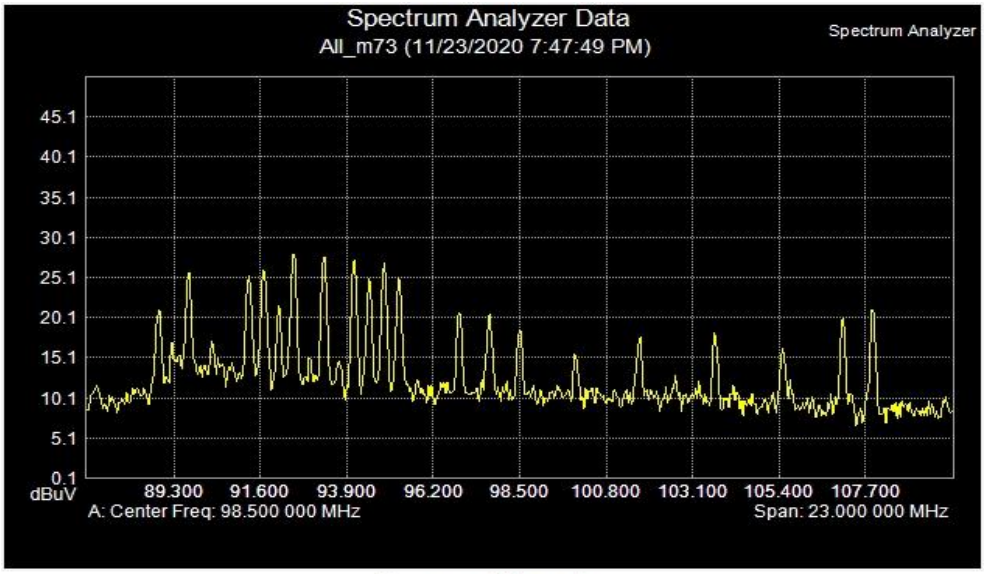


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 7
VBW	30.0 kHz	GPS Latitude	S 38 6 1
Detection	RMS	GPS Fix Time	11 23 2020 09 05 23

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.52	0.011
1	89.7	11.36	0.011
2	91.3	14.48	0.011
3	92.1	13.91	0.009
4	92.9	7.41	0.007
5	93.7	8.98	0.007
6	94.5	31.64	0.009
7	95.3	29.38	0.011
8	96.9	8.48	0.011
9	97.7	9.43	0.009
10	98.5	7.03	0.007
11	99.3	5.4	0.007
12	101.7	25.35	0.013
13	103.7	10.44	0.016
14	107.9	27.45	0.011

M73

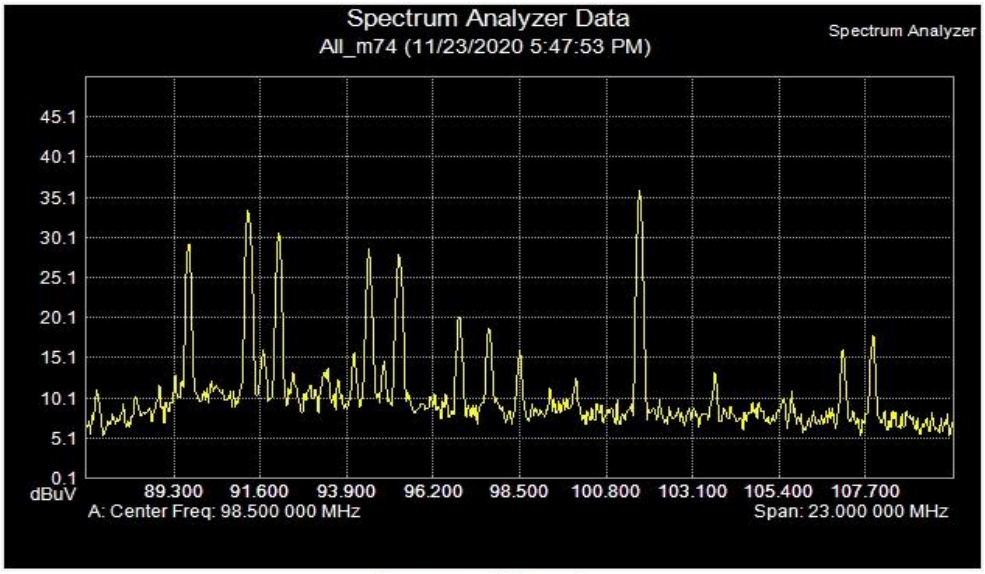


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 25
VBW	30.0 kHz	GPS Latitude	S 38 6 0
Detection	RMS	GPS Fix Time	11 23 2020 08 48 09

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.64	0.011
1	89.7	26.95	0.011
2	91.3	25.62	0.011
3	92.1	21.43	0.009
4	92.9	12.32	0.007
5	93.7	14.79	0.007
6	94.5	25.64	0.009
7	95.3	25.88	0.011
8	96.9	21.2	0.011
9	97.7	20.98	0.009
10	98.5	20.58	0.007
11	99.3	10.01	0.007
12	101.7	22.22	0.013
13	103.7	16.51	0.016
14	107.9	18.53	0.011

M74

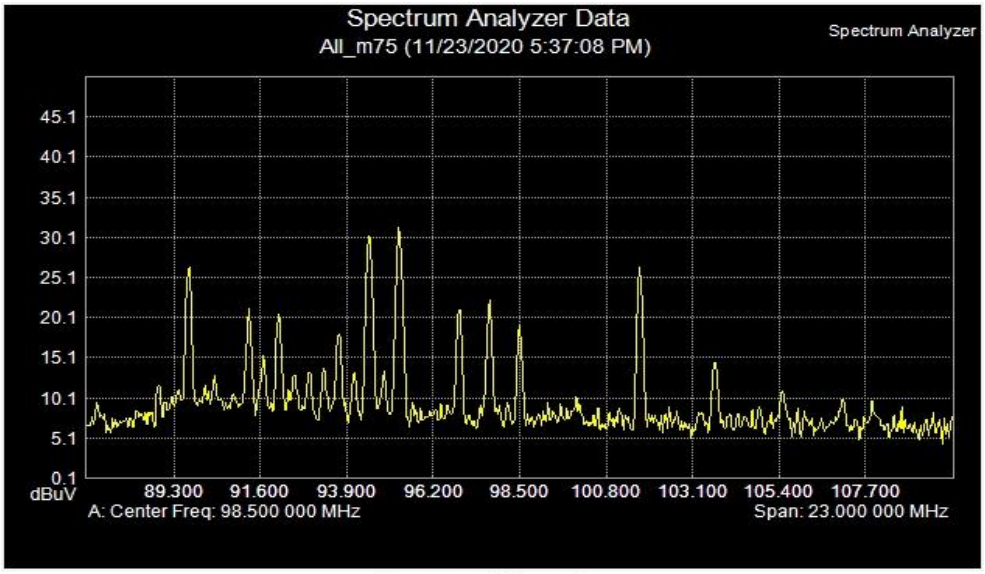


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 17 50
VBW	30.0 kHz	GPS Latitude	S 38 7 22
Detection	RMS	GPS Fix Time	11 23 2020 06 48 11

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	9.82	0.011
1	89.7	31.39	0.011
2	91.3	34.77	0.011
3	92.1	33.87	0.009
4	92.9	10.49	0.007
5	93.7	13.11	0.007
6	94.5	28.69	0.009
7	95.3	27.86	0.011
8	96.9	18.65	0.011
9	97.7	17.42	0.009
10	98.5	15.51	0.007
11	99.3	12.34	0.007
12	101.7	37.04	0.013
13	103.7	12.55	0.016
14	107.9	14.59	0.011

M75

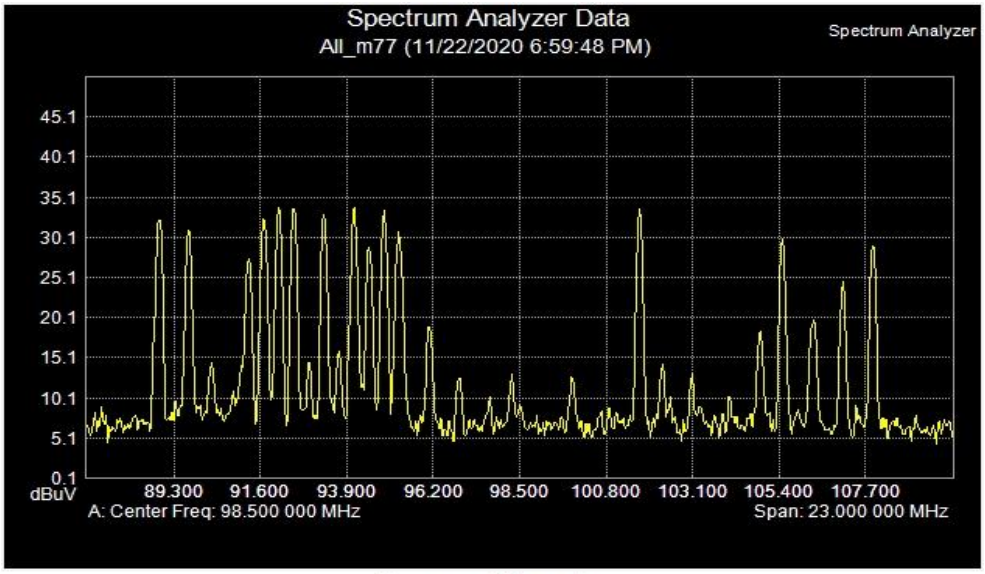


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 2
VBW	30.0 kHz	GPS Latitude	S 38 7 37
Detection	RMS	GPS Fix Time	11 23 2020 06 37 26

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.61	0.011
1	89.7	28.4	0.011
2	91.3	24.19	0.011
3	92.1	22.06	0.009
4	92.9	13.19	0.007
5	93.7	17	0.007
6	94.5	29.69	0.009
7	95.3	29.3	0.011
8	96.9	22.17	0.011
9	97.7	21.49	0.009
10	98.5	18.52	0.007
11	99.3	8.3	0.007
12	101.7	26.45	0.013
13	103.7	14.16	0.016
14	107.9	9.49	0.011

M77

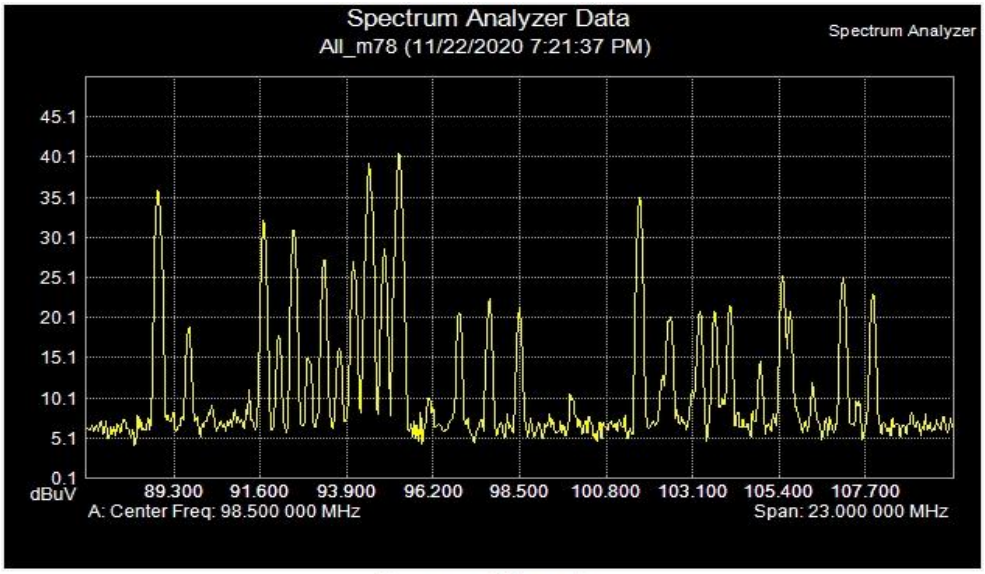


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 38
VBW	30.0 kHz	GPS Latitude	S 38 9 47
Detection	RMS	GPS Fix Time	11 22 2020 08 00 05

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.21	0.011
1	89.7	30.54	0.011
2	91.3	28.19	0.011
3	92.1	34.01	0.009
4	92.9	13.81	0.007
5	93.7	14.96	0.007
6	94.5	28.25	0.009
7	95.3	28.54	0.011
8	96.9	13.14	0.011
9	97.7	12.5	0.009
10	98.5	9.3	0.007
11	99.3	6.69	0.007
12	101.7	32.5	0.013
13	103.7	5.31	0.016
14	107.9	29.98	0.011

M78

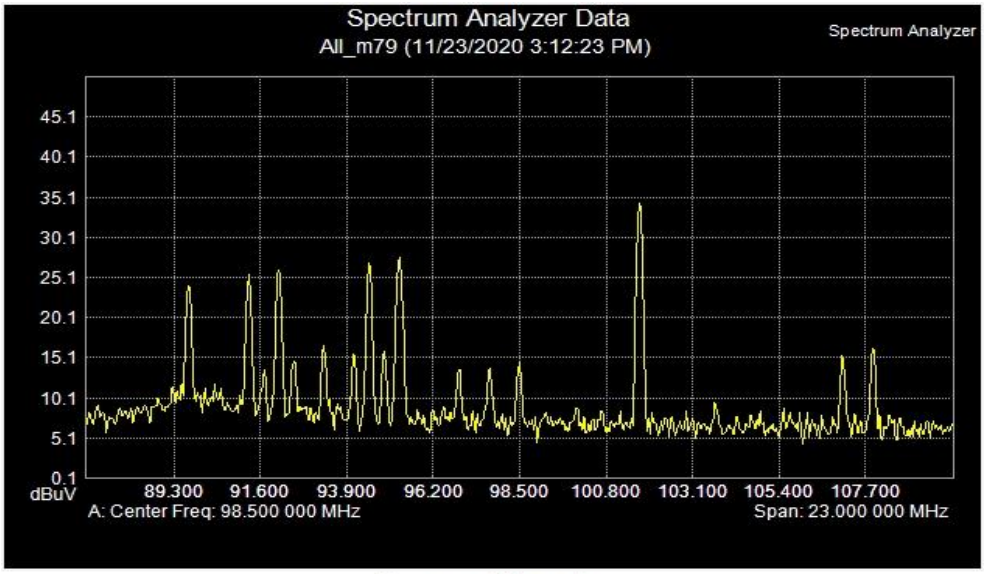


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 3
VBW	30.0 kHz	GPS Latitude	S 38 9 56
Detection	RMS	GPS Fix Time	11 22 2020 08 21 54

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.13	0.011
1	89.7	20.32	0.011
2	91.3	10.15	0.011
3	92.1	18.31	0.009
4	92.9	15.13	0.007
5	93.7	15.87	0.007
6	94.5	39.65	0.009
7	95.3	40.28	0.011
8	96.9	19.65	0.011
9	97.7	22.34	0.009
10	98.5	21.18	0.007
11	99.3	5.21	0.007
12	101.7	35.32	0.013
13	103.7	20.64	0.016
14	107.9	24.09	0.011

M79

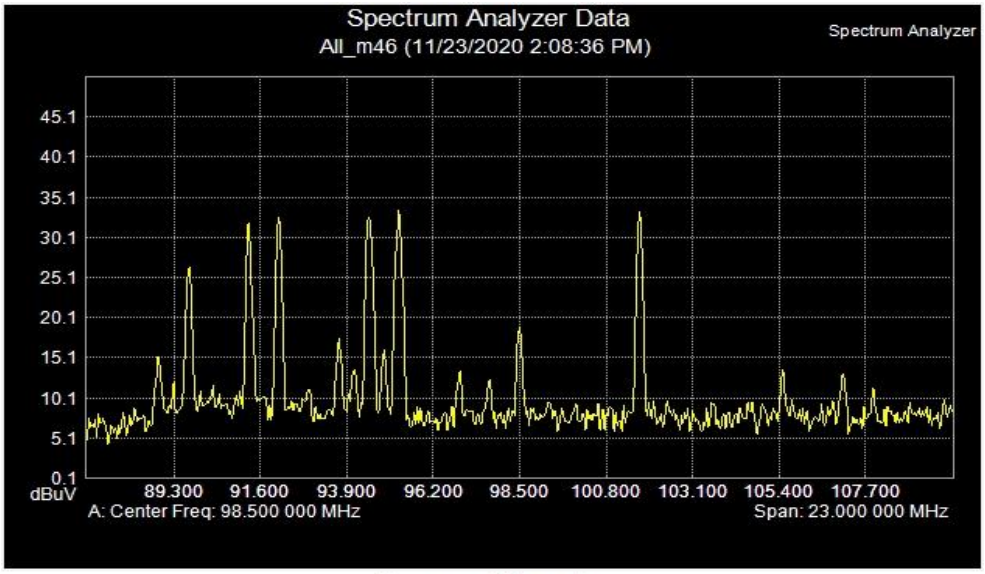


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 18 1
VBW	30.0 kHz	GPS Latitude	S 38 10 46
Detection	RMS	GPS Fix Time	11 23 2020 04 12 41

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.8	0.011
1	89.7	24.62	0.011
2	91.3	26.12	0.011
3	92.1	26.91	0.009
4	92.9	9.56	0.007
5	93.7	9.33	0.007
6	94.5	28.51	0.009
7	95.3	28.79	0.011
8	96.9	15.73	0.011
9	97.7	15.43	0.009
10	98.5	16.62	0.007
11	99.3	7.3	0.007
12	101.7	35.64	0.013
13	103.7	9.25	0.016
14	107.9	17.32	0.011

M80

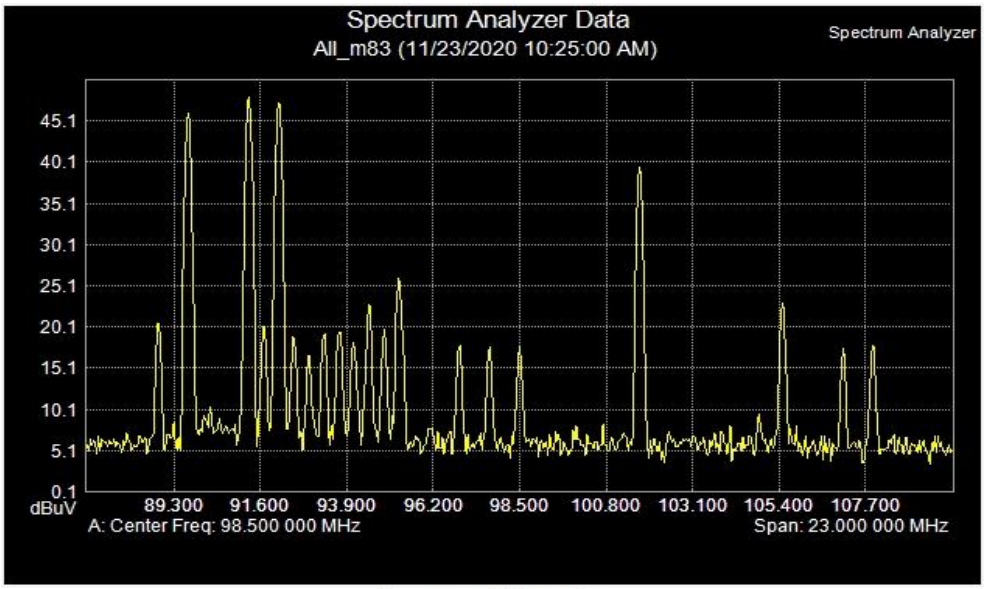


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 19 21
VBW	30.0 kHz	GPS Latitude	S 38 9 26
Detection	RMS	GPS Fix Time	11 23 2020 03 08 54

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.51	0.011
1	89.7	29.38	0.011
2	91.3	34.58	0.011
3	92.1	34.62	0.009
4	92.9	13.55	0.007
5	93.7	18.26	0.007
6	94.5	34.54	0.009
7	95.3	35.28	0.011
8	96.9	11.02	0.011
9	97.7	11.98	0.009
10	98.5	18.65	0.007
11	99.3	8.54	0.007
12	101.7	32.11	0.013
13	103.7	8.71	0.016
14	107.9	9.71	0.011

M83

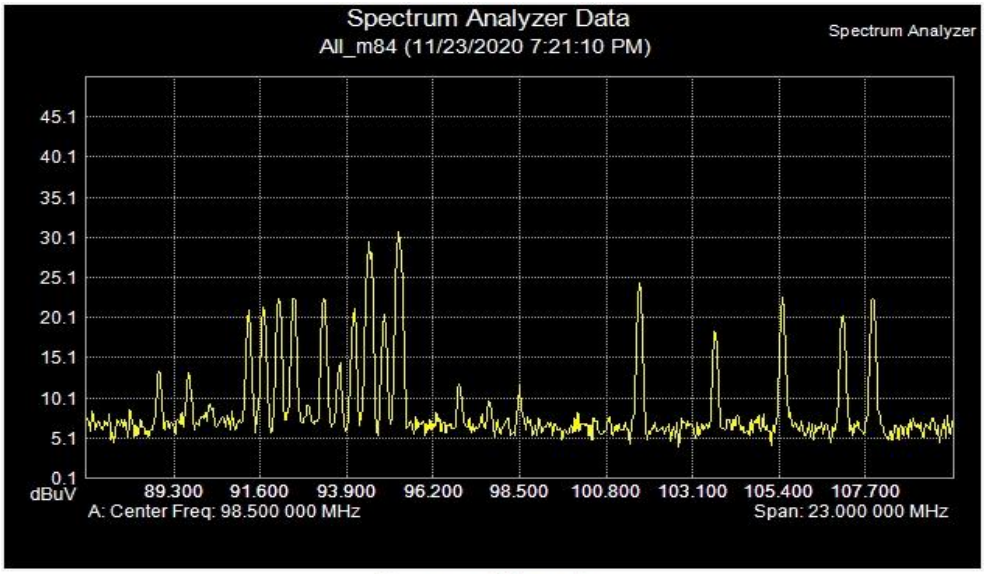


Measurement Parameters

Trace A data:Trace Average	2	Detection	RMS
Trace Mode	Average	Center Frequency	98.500 000 MHz
Preamp	OFF	Start Frequency	87.000 000 MHz
Min Sweep Time	0.149 S	Stop Frequency	110.000 000 MHz
Reference Level Offset	0 dB	Frequency Span	23.000 000 MHz
Input Attenuation	0.0 dB	Reference Level	50.101 dBuV
RBW	100.0 kHz	Scale	5.0 dBuV/div
VBW	30.0 kHz		

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.66	0.011
1	89.7	45.82	0.011
2	91.3	48.24	0.011
3	92.1	47.43	0.009
4	92.9	16.4	0.007
5	93.7	19.43	0.007
6	94.5	21.32	0.009
7	95.3	24.83	0.011
8	96.9	17.73	0.011
9	97.7	16.2	0.009
10	98.5	16.51	0.007
11	99.3	5.05	0.007
12	101.7	37.82	0.013
13	103.7	8.2	0.016
14	107.9	16.07	0.011

M84

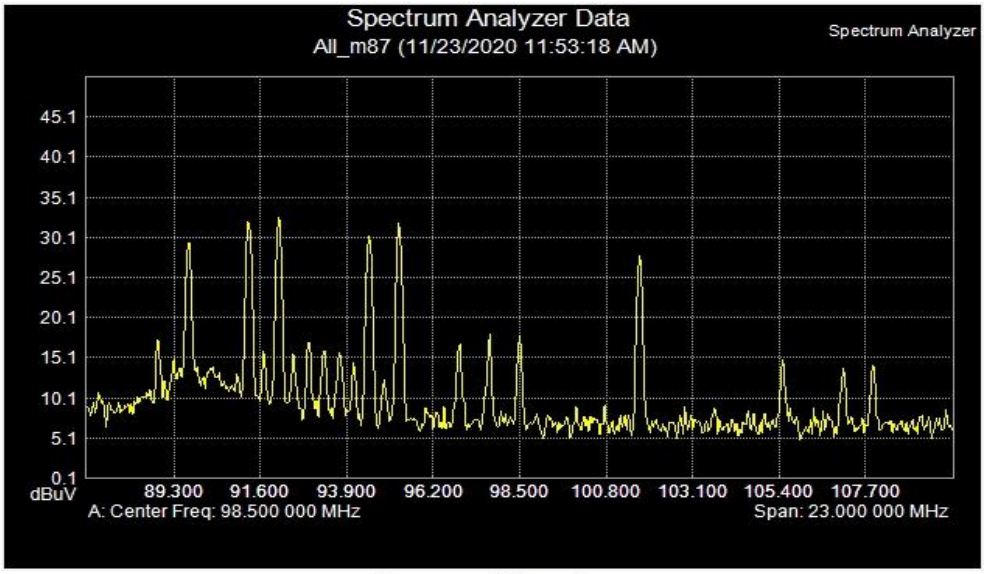


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 18 46
VBW	30.0 kHz	GPS Latitude	S 38 4 49
Detection	RMS	GPS Fix Time	11 23 2020 08 21 30

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.48	0.011
1	89.7	15.25	0.011
2	91.3	17.03	0.011
3	92.1	20.01	0.009
4	92.9	10.45	0.007
5	93.7	14.03	0.007
6	94.5	29.11	0.009
7	95.3	28.21	0.011
8	96.9	10.82	0.011
9	97.7	7.61	0.009
10	98.5	7.81	0.007
11	99.3	5.46	0.007
12	101.7	27.05	0.013
13	103.7	10.09	0.016
14	107.9	19.09	0.011

M87

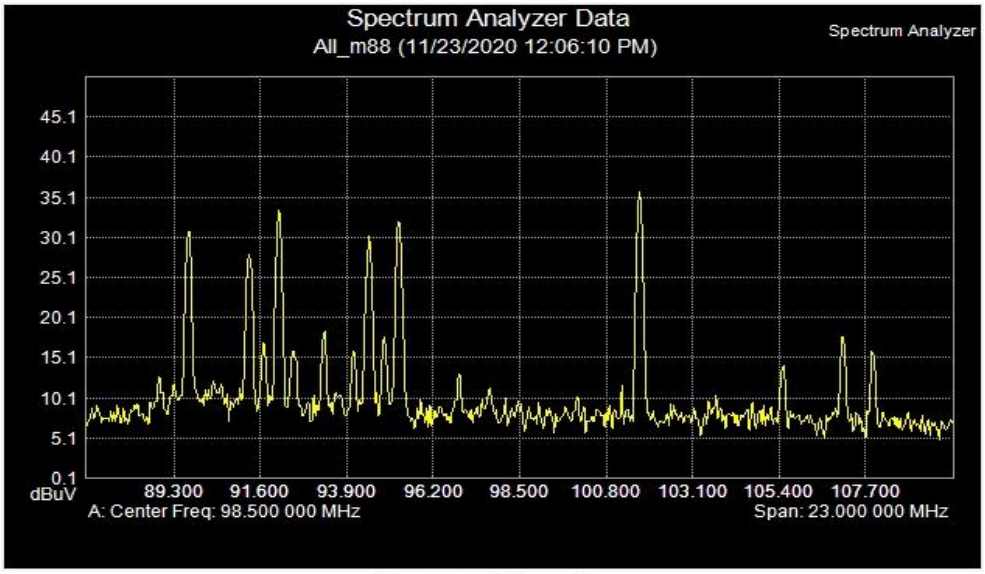


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 16 57
VBW	30.0 kHz	GPS Latitude	S 38 8 44
Detection	RMS	GPS Fix Time	11 23 2020 00 53 36

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.36	0.011
1	89.7	28.85	0.011
2	91.3	33.04	0.011
3	92.1	33.83	0.009
4	92.9	18.15	0.007
5	93.7	17.33	0.007
6	94.5	29.89	0.009
7	95.3	32.02	0.011
8	96.9	16.49	0.011
9	97.7	17.91	0.009
10	98.5	18.24	0.007
11	99.3	6.51	0.007
12	101.7	31.58	0.013
13	103.7	10.4	0.016
14	107.9	15.11	0.011

M88

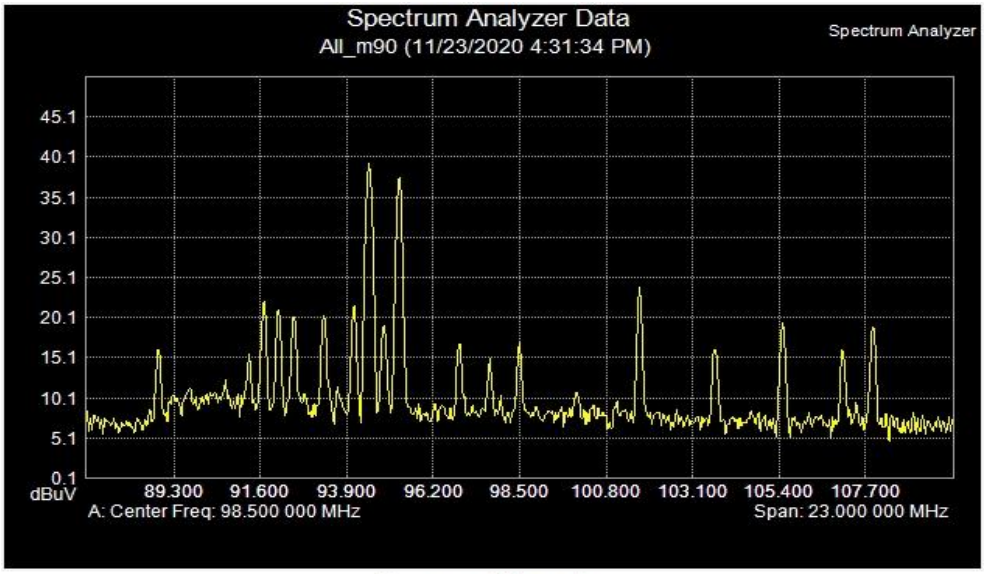


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 17 2
VBW	30.0 kHz	GPS Latitude	S 38 9 16
Detection	RMS	GPS Fix Time	11 23 2020 01 06 29

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	9.41	0.011
1	89.7	33	0.011
2	91.3	31.03	0.011
3	92.1	34.48	0.009
4	92.9	6.65	0.007
5	93.7	12.86	0.007
6	94.5	31.71	0.009
7	95.3	32.01	0.011
8	96.9	12.84	0.011
9	97.7	11.61	0.009
10	98.5	11.07	0.007
11	99.3	7.49	0.007
12	101.7	37.49	0.013
13	103.7	8.04	0.016
14	107.9	16.43	0.011

M90

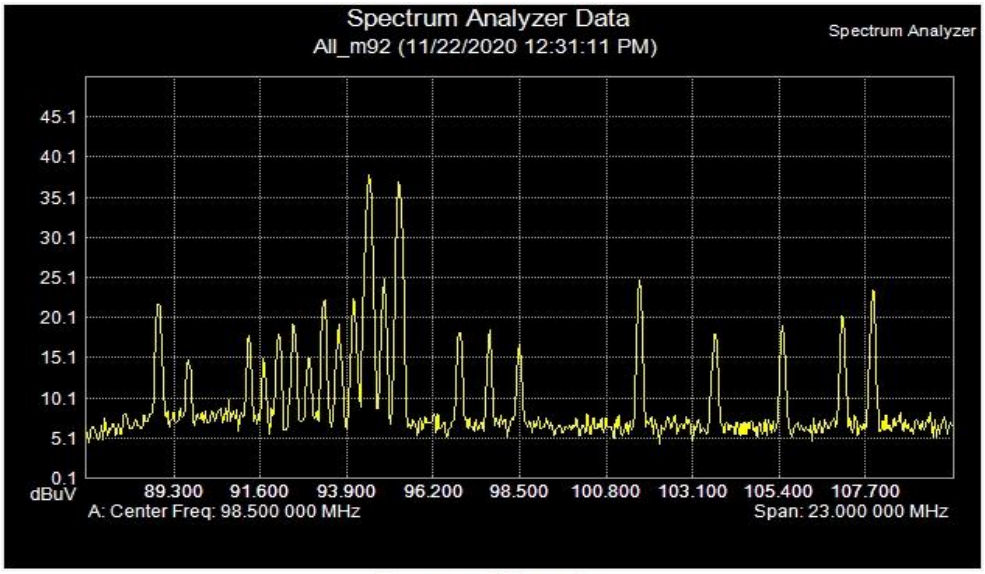


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 22 7
VBW	30.0 kHz	GPS Latitude	S 38 8 55
Detection	RMS	GPS Fix Time	11 23 2020 05 31 52

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.87	0.011
1	89.7	9.99	0.011
2	91.3	12.72	0.011
3	92.1	21.73	0.009
4	92.9	8.73	0.007
5	93.7	11.13	0.007
6	94.5	39.49	0.009
7	95.3	37.77	0.011
8	96.9	15.2	0.011
9	97.7	13.29	0.009
10	98.5	16.27	0.007
11	99.3	8.66	0.007
12	101.7	26.3	0.013
13	103.7	16.52	0.016
14	107.9	19.9	0.011

M92

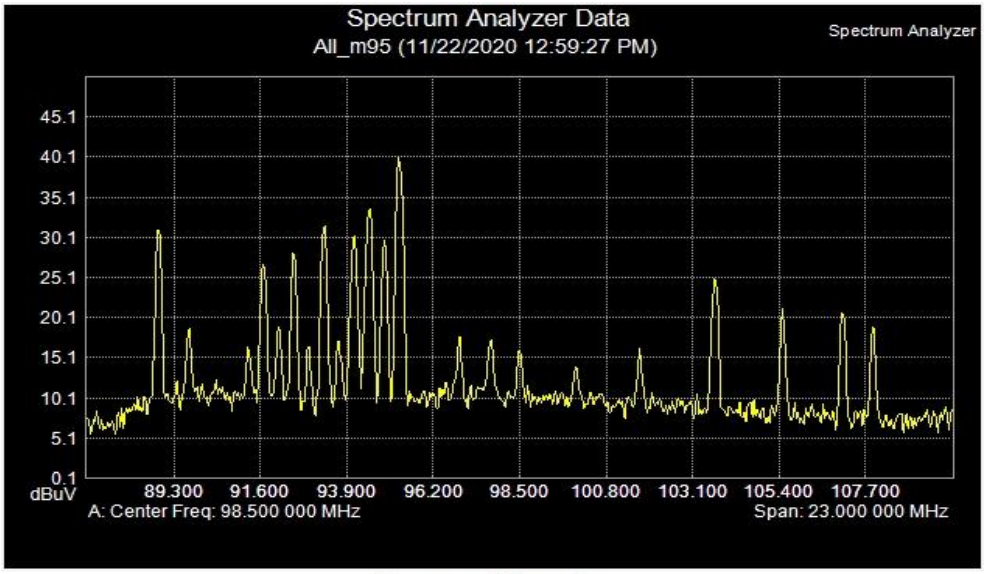


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 10
VBW	30.0 kHz	GPS Latitude	S 38 4 13
Detection	RMS	GPS Fix Time	11 22 2020 01 31 29

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.31	0.011
1	89.7	13.98	0.011
2	91.3	18.05	0.011
3	92.1	15.63	0.009
4	92.9	15.76	0.007
5	93.7	18.77	0.007
6	94.5	37.37	0.009
7	95.3	35.92	0.011
8	96.9	18.41	0.011
9	97.7	17.98	0.009
10	98.5	16.04	0.007
11	99.3	10.94	0.007
12	101.7	24.78	0.013
13	103.7	17.69	0.016
14	107.9	24.29	0.011

M95

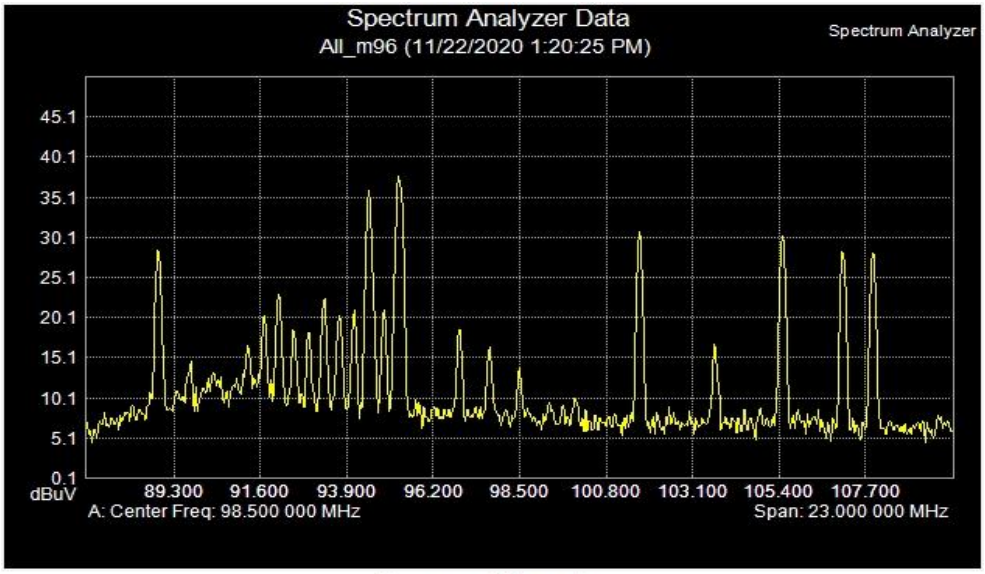


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 10
VBW	30.0 kHz	GPS Latitude	S 38 3 51
Detection	RMS	GPS Fix Time	11 22 2020 01 59 44

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.39	0.011
1	89.7	18.53	0.011
2	91.3	15.19	0.011
3	92.1	18.93	0.009
4	92.9	16.11	0.007
5	93.7	16.15	0.007
6	94.5	29.67	0.009
7	95.3	38.14	0.011
8	96.9	18.72	0.011
9	97.7	17.09	0.009
10	98.5	17.87	0.007
11	99.3	9.69	0.007
12	101.7	17.82	0.013
13	103.7	24.1	0.016
14	107.9	21.43	0.011

M96

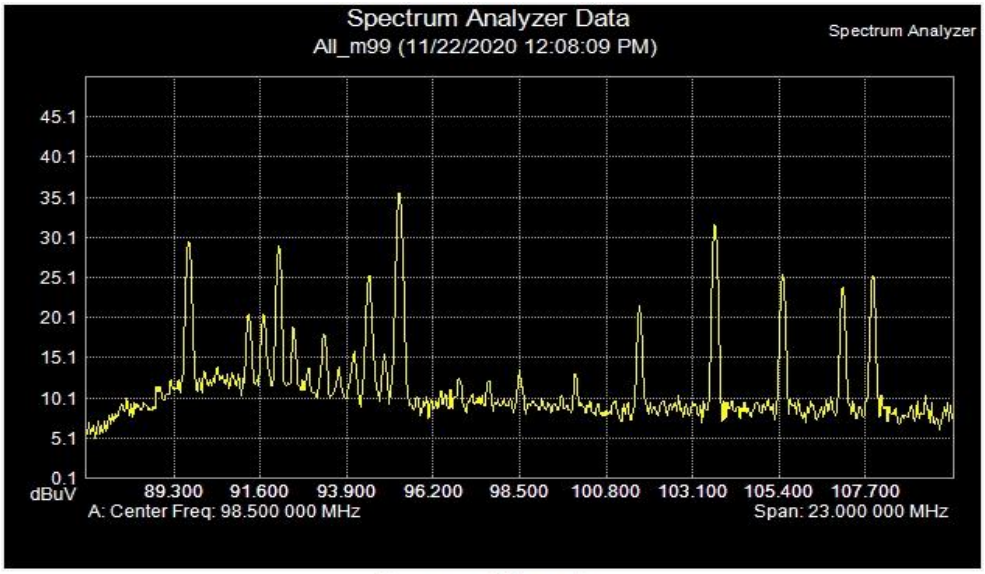


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 57
VBW	30.0 kHz	GPS Latitude	S 38 4 26
Detection	RMS	GPS Fix Time	11 22 2020 02 20 42

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.27	0.011
1	89.7	14.26	0.011
2	91.3	17.91	0.011
3	92.1	23.14	0.009
4	92.9	17.93	0.007
5	93.7	20.77	0.007
6	94.5	36.22	0.009
7	95.3	37.16	0.011
8	96.9	17.92	0.011
9	97.7	16.18	0.009
10	98.5	13.38	0.007
11	99.3	8.64	0.007
12	101.7	31.07	0.013
13	103.7	16.27	0.016
14	107.9	29.19	0.011

M99

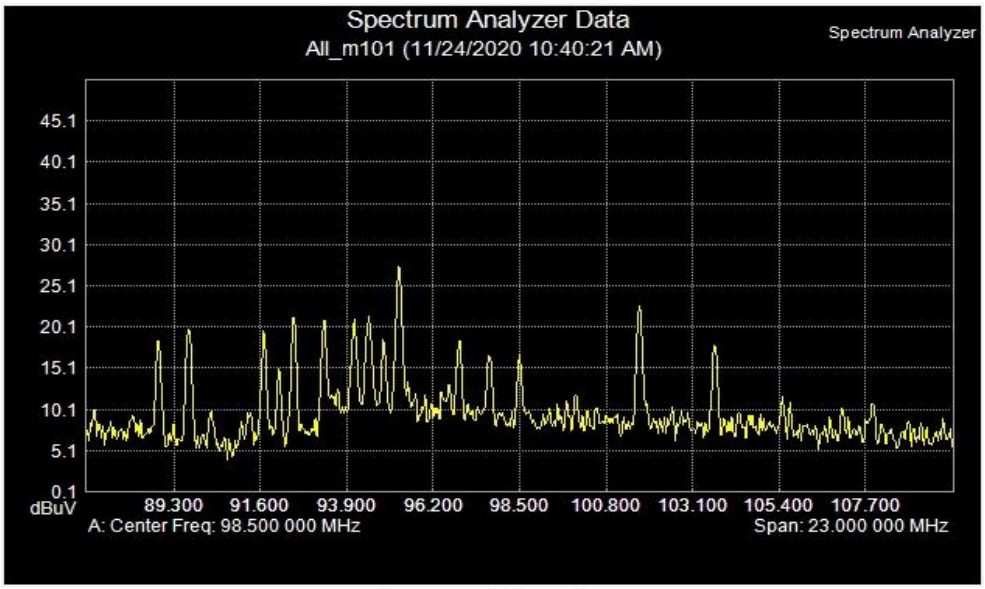


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 25 22
VBW	30.0 kHz	GPS Latitude	S 38 4 19
Detection	RMS	GPS Fix Time	11 22 2020 01 08 26

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.85	0.011
1	89.7	28.85	0.011
2	91.3	20.48	0.011
3	92.1	30.24	0.009
4	92.9	13.82	0.007
5	93.7	12.3	0.007
6	94.5	34.17	0.009
7	95.3	38.1	0.011
8	96.9	13.06	0.011
9	97.7	14.2	0.009
10	98.5	13.79	0.007
11	99.3	8.26	0.007
12	101.7	24.74	0.013
13	103.7	31.5	0.016
14	107.9	26.28	0.011

M101

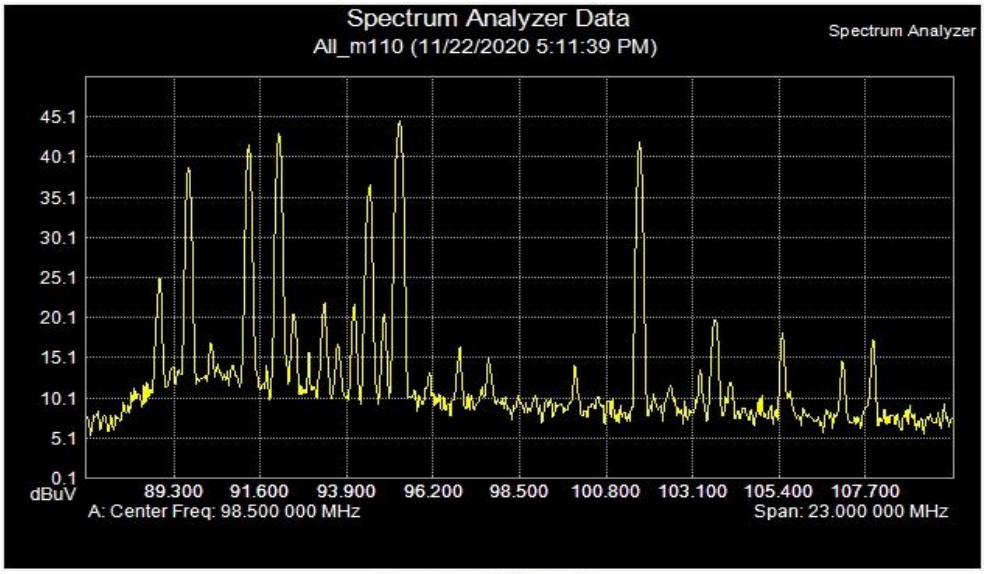


Measurement Parameters

Trace A data:Trace Average	2	Detection	RMS
Trace Mode	Average	Center Frequency	98.500 000 MHz
Preamp	OFF	Start Frequency	87.000 000 MHz
Min Sweep Time	0.149 S	Stop Frequency	110.000 000 MHz
Reference Level Offset	0 dB	Frequency Span	23.000 000 MHz
Input Attenuation	0.0 dB	Reference Level	50.101 dBuV
RBW	100.0 kHz	Scale	5.0 dBuV/div
VBW	30.0 kHz		

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	26.02	0.011
2	91.3	25.29	0.011
3	92.1	21.99	0.009
4	92.9	7.41	0.007
5	93.7	6.16	0.007
6	94.5	27.08	0.009
7	95.3	27.56	0.011
8	96.9	17.55	0.011
9	97.7	9.39	0.009
10	98.5	13.07	0.007
11	99.3	6.22	0.007
12	101.7	31.84	0.013
13	103.7	9.74	0.016
14	107.9	11.02	0.011

M110

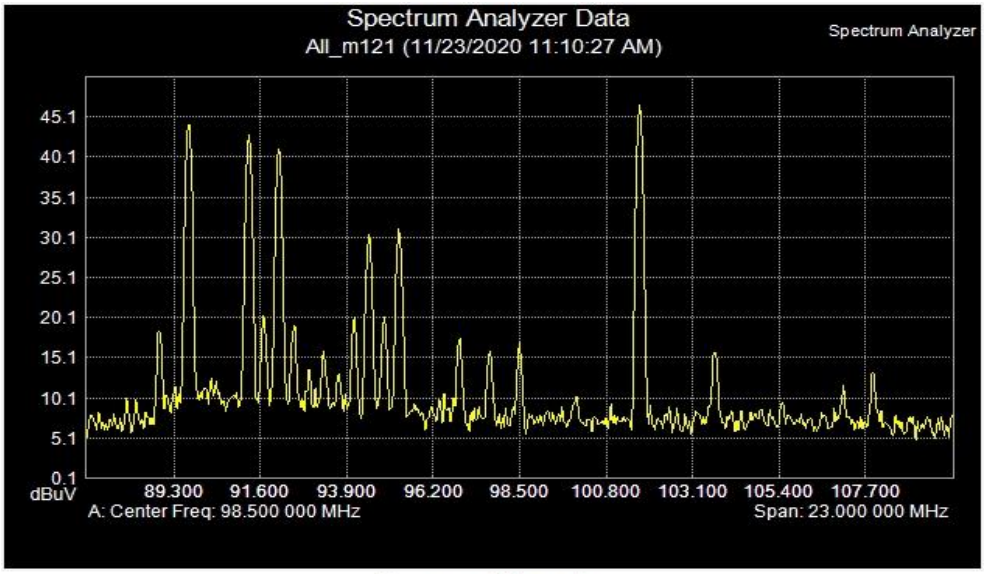


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 23 4
VBW	30.0 kHz	GPS Latitude	S 38 11 19
Detection	RMS	GPS Fix Time	11 22 2020 06 11 57

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.96	0.011
1	89.7	38.46	0.011
2	91.3	41.68	0.011
3	92.1	42.22	0.009
4	92.9	15.05	0.007
5	93.7	16.68	0.007
6	94.5	38.14	0.009
7	95.3	45.21	0.011
8	96.9	13.89	0.011
9	97.7	12.94	0.009
10	98.5	9.02	0.007
11	99.3	7.92	0.007
12	101.7	41.81	0.013
13	103.7	20.62	0.016
14	107.9	16.49	0.011

M121

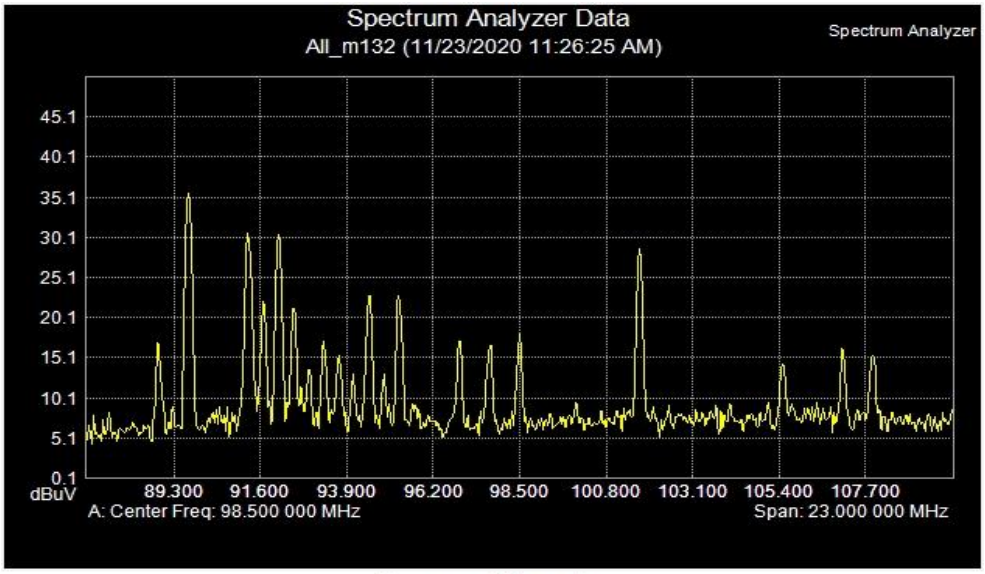


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 17 34
VBW	30.0 kHz	GPS Latitude	S 38 11 41
Detection	RMS	GPS Fix Time	11 23 2020 00 10 46

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	4.93	0.011
1	89.7	45.66	0.011
2	91.3	39.97	0.011
3	92.1	36.79	0.009
4	92.9	10.36	0.007
5	93.7	10.15	0.007
6	94.5	30.5	0.009
7	95.3	30	0.011
8	96.9	17.52	0.011
9	97.7	14.75	0.009
10	98.5	16.97	0.007
11	99.3	5.69	0.007
12	101.7	45.85	0.013
13	103.7	17.07	0.016
14	107.9	11.42	0.011

M132

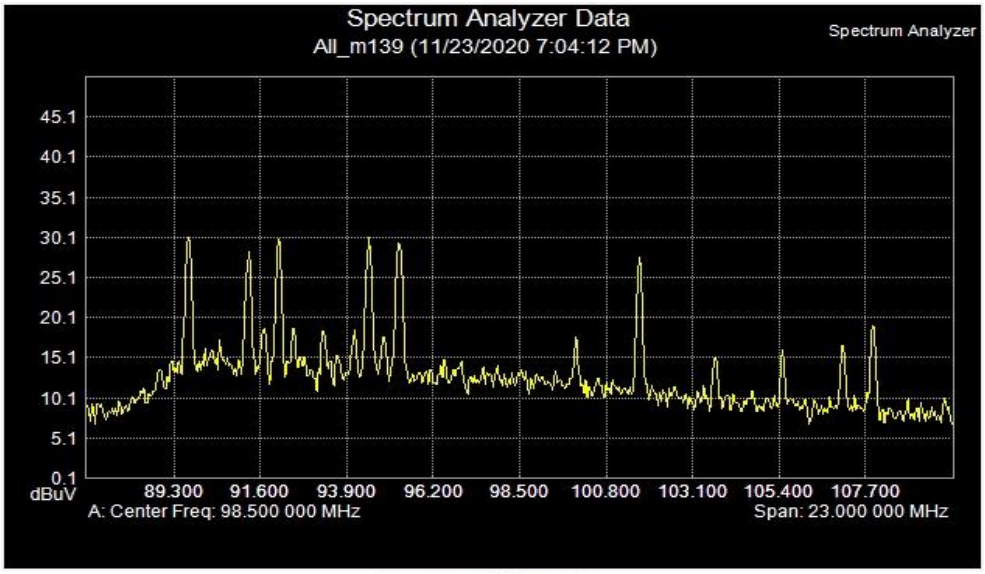


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 16 8
VBW	30.0 kHz	GPS Latitude	S 38 9 29
Detection	RMS	GPS Fix Time	11 23 2020 00 26 44

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	3.74	0.011
1	89.7	35.81	0.011
2	91.3	31.26	0.011
3	92.1	30.45	0.009
4	92.9	13.12	0.007
5	93.7	15.36	0.007
6	94.5	23.62	0.009
7	95.3	22.1	0.011
8	96.9	18.16	0.011
9	97.7	17.52	0.009
10	98.5	17.82	0.007
11	99.3	6.95	0.007
12	101.7	27.9	0.013
13	103.7	6.9	0.016
14	107.9	14.56	0.011

M139

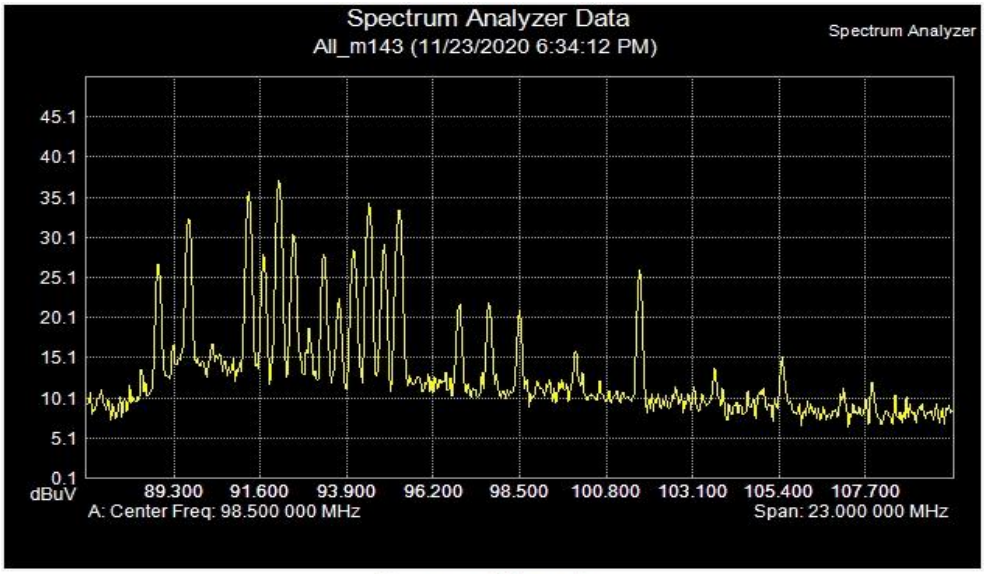


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 16 52
VBW	30.0 kHz	GPS Latitude	S 38 5 47
Detection	RMS	GPS Fix Time	11 23 2020 08 04 30

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.4	0.011
1	89.7	30.91	0.011
2	91.3	27.71	0.011
3	92.1	30.18	0.009
4	92.9	12.42	0.007
5	93.7	14.76	0.007
6	94.5	29.23	0.009
7	95.3	27.6	0.011
8	96.9	13.46	0.011
9	97.7	11.31	0.009
10	98.5	14.55	0.007
11	99.3	12.02	0.007
12	101.7	27.49	0.013
13	103.7	15.56	0.016
14	107.9	19	0.011

M143

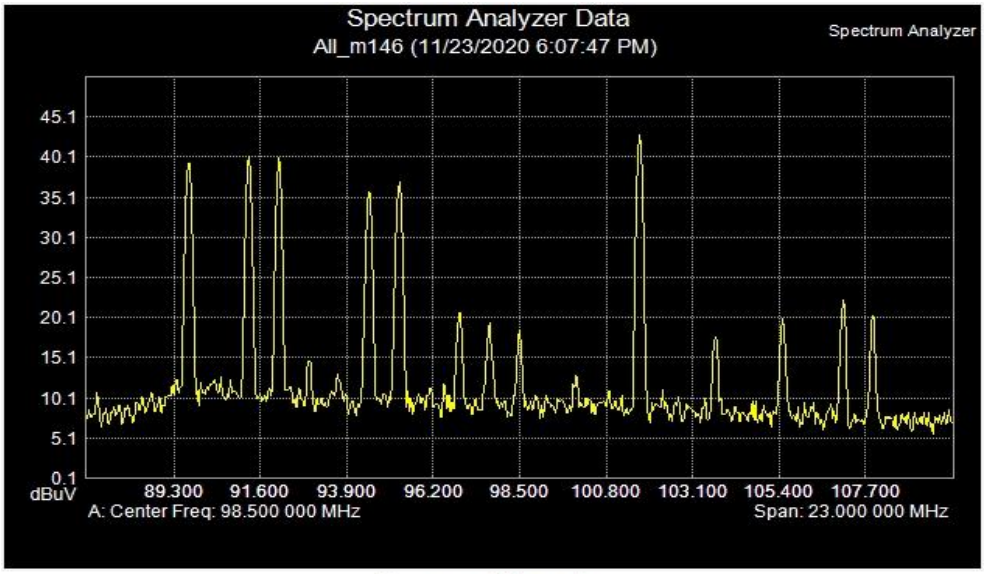


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 14 20
VBW	30.0 kHz	GPS Latitude	S 38 5 39
Detection	RMS	GPS Fix Time	11 23 2020 07 34 29

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.26	0.011
1	89.7	34.35	0.011
2	91.3	37.22	0.011
3	92.1	38.08	0.009
4	92.9	16.82	0.007
5	93.7	20.82	0.007
6	94.5	32.48	0.009
7	95.3	30.72	0.011
8	96.9	20.1	0.011
9	97.7	19.67	0.009
10	98.5	18.26	0.007
11	99.3	11.46	0.007
12	101.7	27.13	0.013
13	103.7	12.66	0.016
14	107.9	13.13	0.011

M146

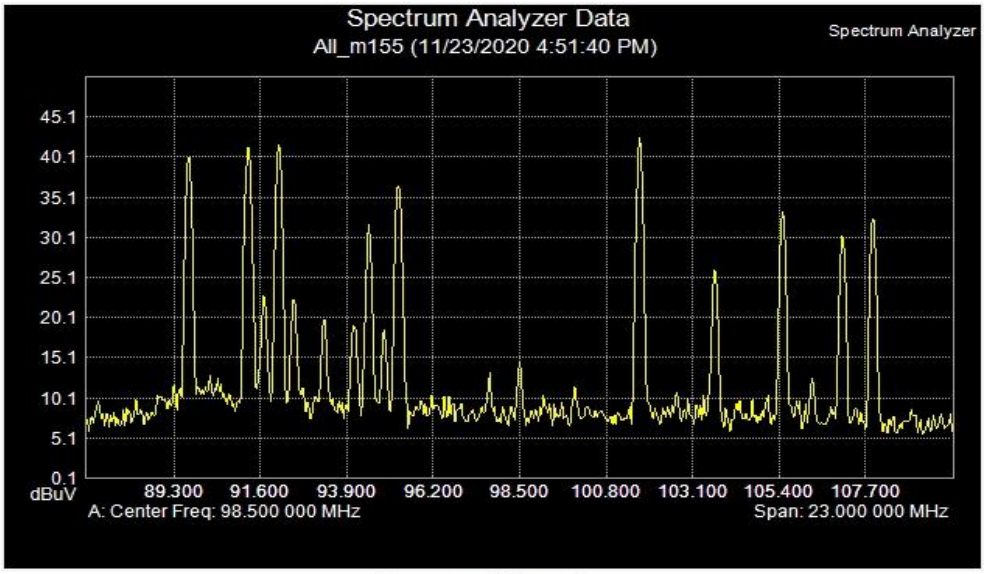


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 14 20
VBW	30.0 kHz	GPS Latitude	S 38 7 24
Detection	RMS	GPS Fix Time	11 23 2020 07 08 05

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.89	0.011
1	89.7	38.55	0.011
2	91.3	41.72	0.011
3	92.1	41.45	0.009
4	92.9	14.95	0.007
5	93.7	15.31	0.007
6	94.5	37.52	0.009
7	95.3	38.64	0.011
8	96.9	21.35	0.011
9	97.7	20.65	0.009
10	98.5	19.81	0.007
11	99.3	8.65	0.007
12	101.7	44.13	0.013
13	103.7	17.6	0.016
14	107.9	19.06	0.011

M155

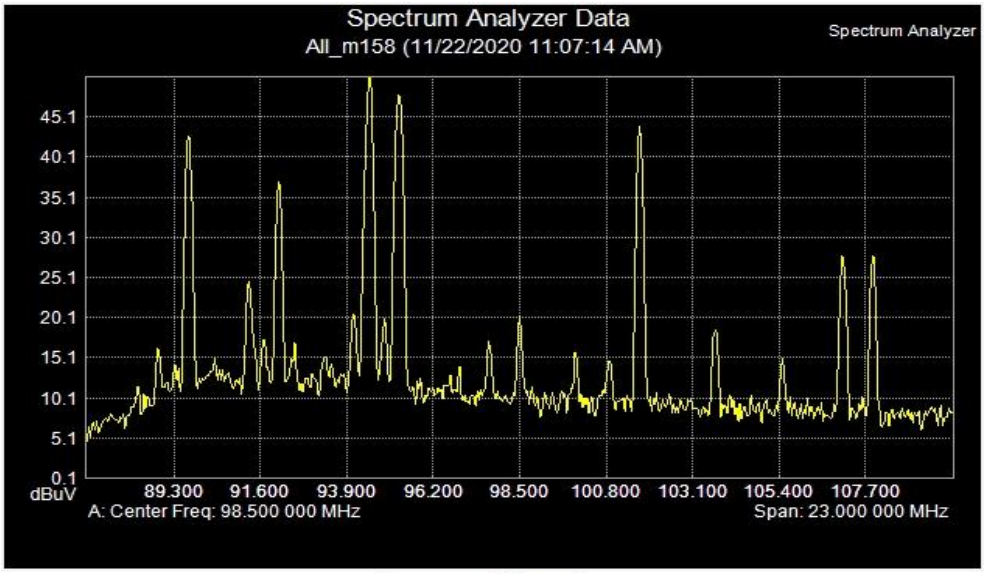


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 25 40
VBW	30.0 kHz	GPS Latitude	S 38 8 24
Detection	RMS	GPS Fix Time	11 23 2020 05 51 58

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	5.92	0.011
1	89.7	41.17	0.011
2	91.3	42.94	0.011
3	92.1	42.6	0.009
4	92.9	10.78	0.007
5	93.7	9.88	0.007
6	94.5	31.07	0.009
7	95.3	37.69	0.011
8	96.9	8.51	0.011
9	97.7	10.8	0.009
10	98.5	15.85	0.007
11	99.3	8.09	0.007
12	101.7	44.29	0.013
13	103.7	26.02	0.016
14	107.9	34.66	0.011

M158

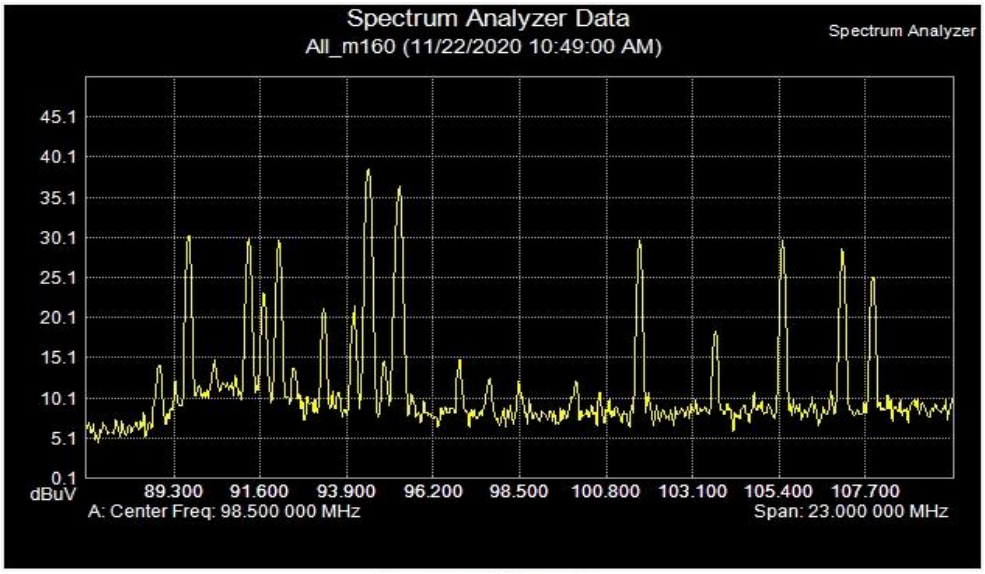


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 25 32
VBW	30.0 kHz	GPS Latitude	S 38 9 2
Detection	RMS	GPS Fix Time	11 22 2020 00 07 32

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.06	0.011
1	89.7	44.96	0.011
2	91.3	17.79	0.011
3	92.1	36.23	0.009
4	92.9	13.47	0.007
5	93.7	14.34	0.007
6	94.5	52.93	0.009
7	95.3	51.36	0.011
8	96.9	11.35	0.011
9	97.7	14.84	0.009
10	98.5	19.94	0.007
11	99.3	9.55	0.007
12	101.7	44.91	0.013
13	103.7	19.03	0.016
14	107.9	26.75	0.011

M160

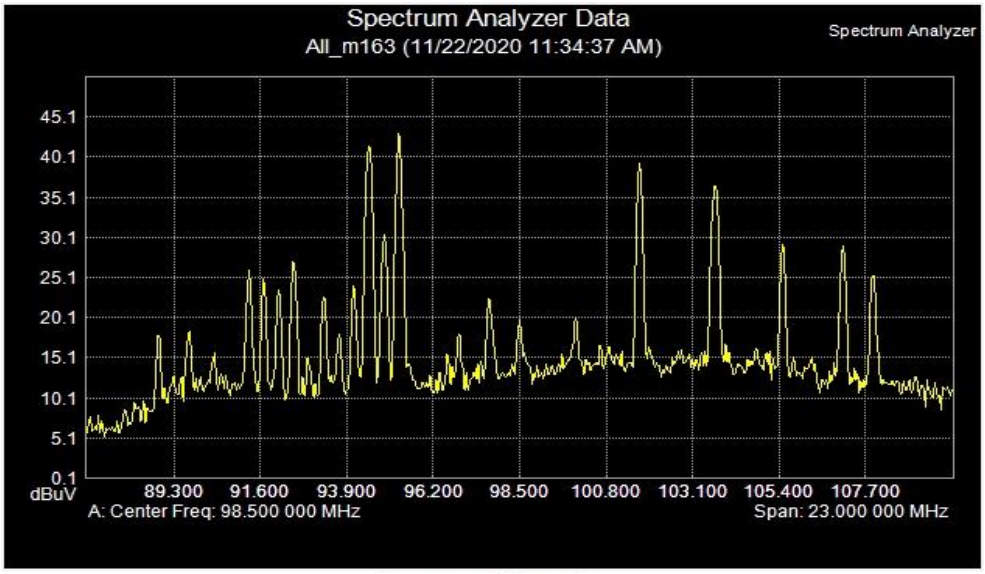


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 25 25
VBW	30.0 kHz	GPS Latitude	S 38 10 26
Detection	RMS	GPS Fix Time	11 21 2020 23 49 17

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	7.12	0.011
1	89.7	27.07	0.011
2	91.3	27.74	0.011
3	92.1	26.24	0.009
4	92.9	8.85	0.007
5	93.7	10.3	0.007
6	94.5	37.93	0.009
7	95.3	36.72	0.011
8	96.9	15.04	0.011
9	97.7	12.82	0.009
10	98.5	13.65	0.007
11	99.3	7.23	0.007
12	101.7	28.83	0.013
13	103.7	16.11	0.016
14	107.9	24.26	0.011

M163

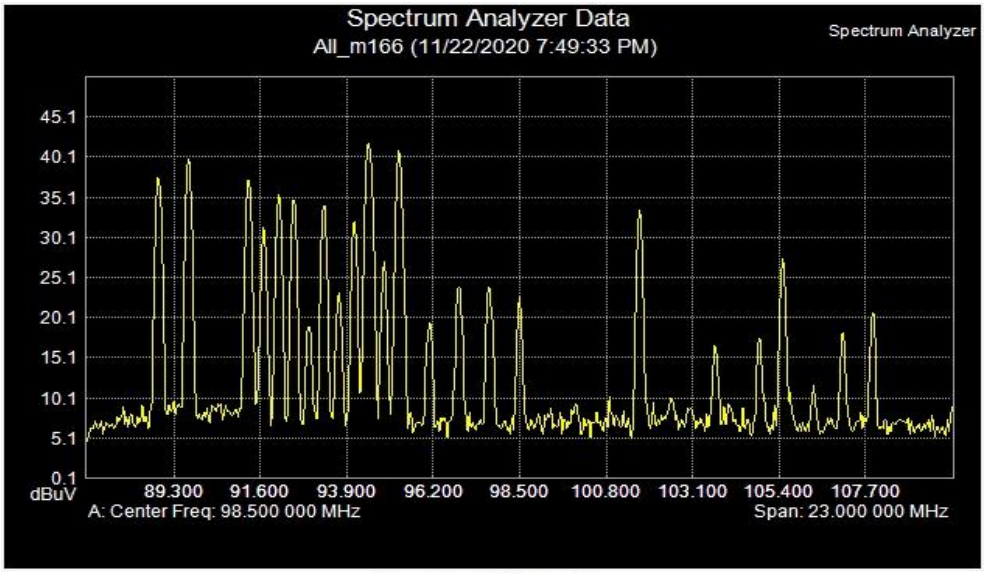


Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 25 37
VBW	30.0 kHz	GPS Latitude	S 38 6 26
Detection	RMS	GPS Fix Time	11 22 2020 00 34 54

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	6.98	0.011
1	89.7	13.06	0.011
2	91.3	24.99	0.011
3	92.1	20.37	0.009
4	92.9	13.94	0.007
5	93.7	17.6	0.007
6	94.5	41.14	0.009
7	95.3	41.98	0.011
8	96.9	17.2	0.011
9	97.7	20.58	0.009
10	98.5	15.61	0.007
11	99.3	7.26	0.007
12	101.7	36.62	0.013
13	103.7	33.11	0.016
14	107.9	32.05	0.011

M166



Measurement Parameters

Trace A data:Trace Average	2	Center Frequency	98.500 000 MHz
Trace Mode	Average	Start Frequency	87.000 000 MHz
Preamp	OFF	Stop Frequency	110.000 000 MHz
Min Sweep Time	0.149 S	Frequency Span	23.000 000 MHz
Reference Level Offset	0 dB	Reference Level	50.101 dBuV
Input Attenuation	0.0 dB	Scale	5.0 dBuV/div
RBW	100.0 kHz	GPS Longitude	E 142 20 34
VBW	30.0 kHz	GPS Latitude	S 38 8 54
Detection	RMS	GPS Fix Time	11 22 2020 08 49 51

	Frequency (Mhz)	Power(udBV)	Frequency_Uncertainty (Mhz)
0	87.6	8.73	0.011
1	89.7	40.45	0.011
2	91.3	37.85	0.011
3	92.1	35.66	0.009
4	92.9	19.37	0.007
5	93.7	23.21	0.007
6	94.5	43.72	0.009
7	95.3	41.57	0.011
8	96.9	23.82	0.011
9	97.7	23.8	0.009
10	98.5	22.5	0.007
11	99.3	6.28	0.007
12	101.7	33.98	0.013
13	103.7	15.92	0.016
14	107.9	21.81	0.011

APPENDIX G TELEVISION STRENGTH SIGNAL SURVEY RESULTS

M04

Figure G-1

Antenna Aiming

Figure G-2 Channel 47

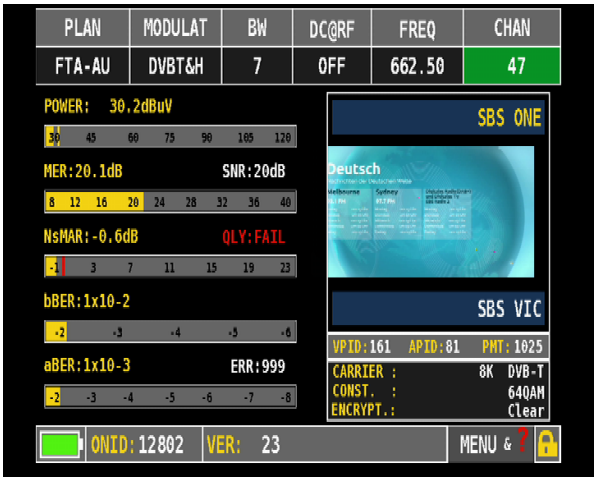
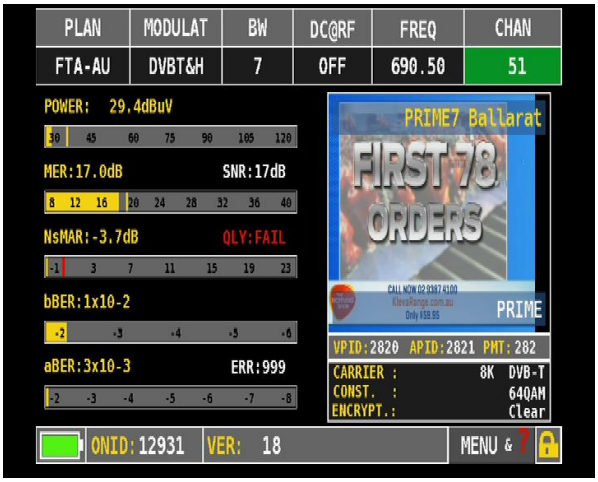


Figure G-3 Channel 48

Figure G-4 Channel 49

Figure G-5 Channel 50

Figure G-6 Channel 51



M06

Figure G-7 Antenna Aiming

Figure G-8 Channel 47

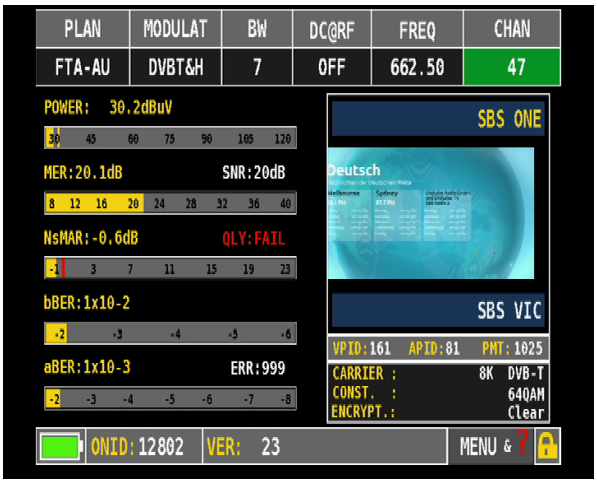


Figure G-9 Channel 48

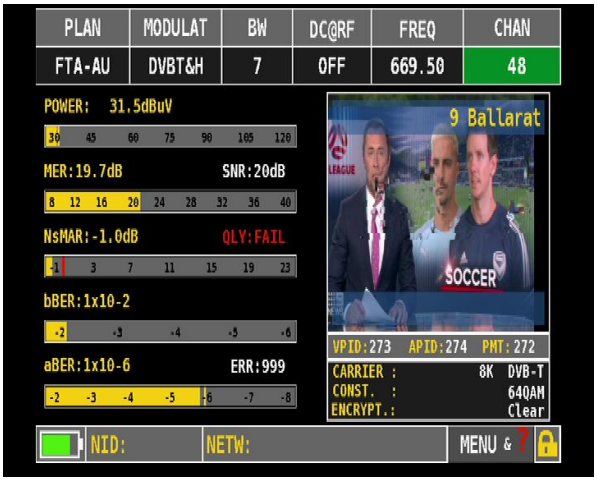
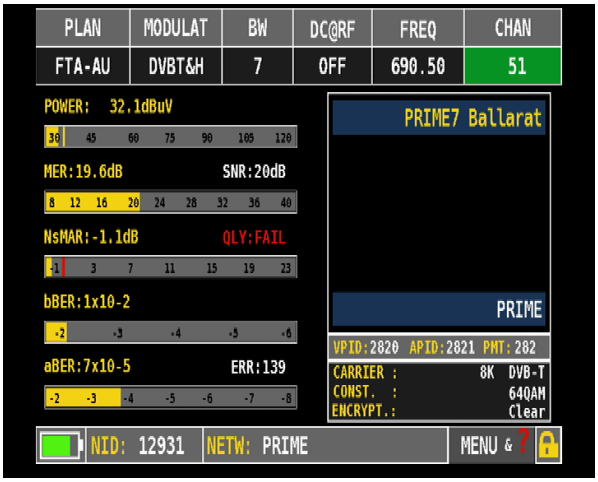


Figure G-10 Channel 49

Figure G-11 Channel 50

Figure G-12 Channel 51



M19

Figure G-13 Antenna Aiming

Figure G-14 Channel 47

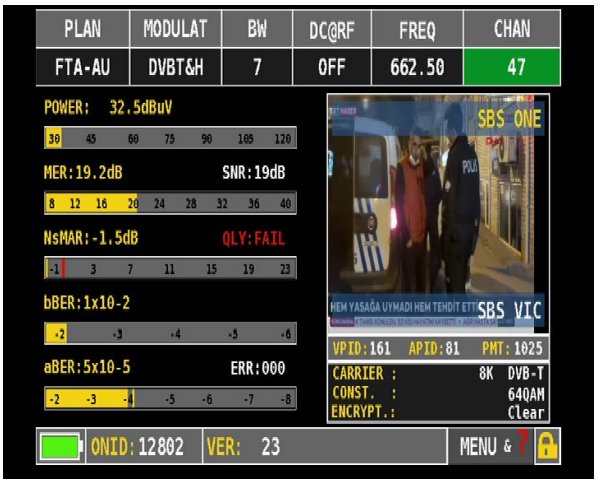


Figure G-15 Channel 48

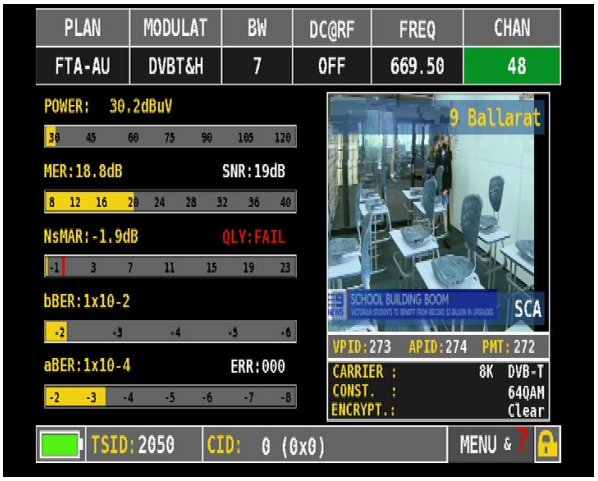
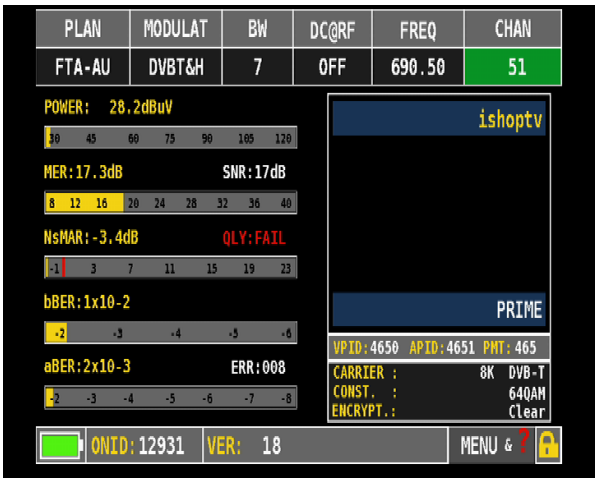


Figure G-16 Channel 49

Figure G-17 Channel 50

Figure G-18 Channel 51



M27

Figure G-19 Antenna Aiming

Figure G-20 Channel 47

Figure G-21 Channel 48

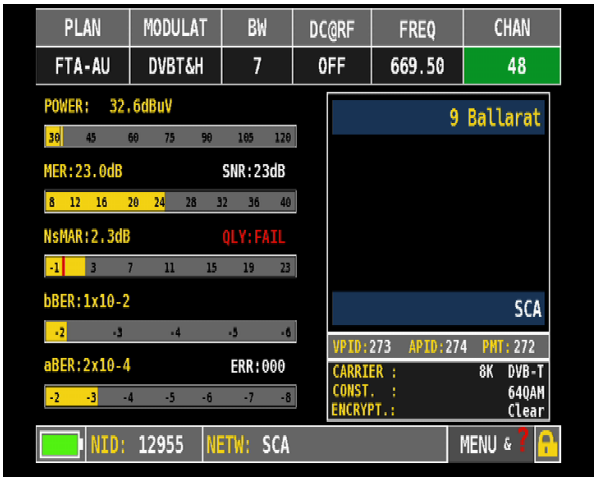
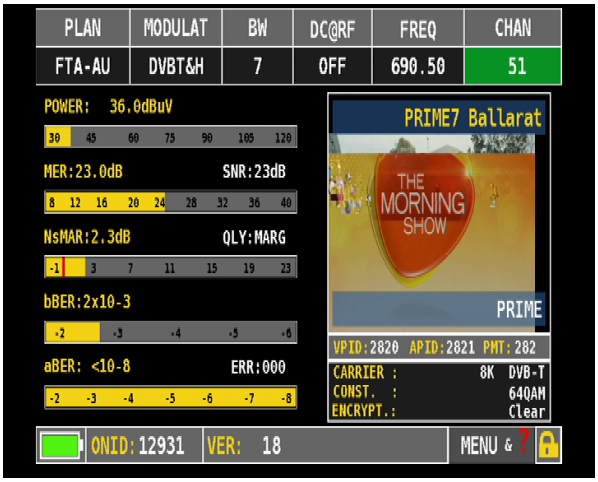


Figure G-22 Channel 49

Figure G-23 Channel 50

Figure G-24 Channel 51



M37

Figure G-25 Antenna Aiming

Figure G-26 Channel 47

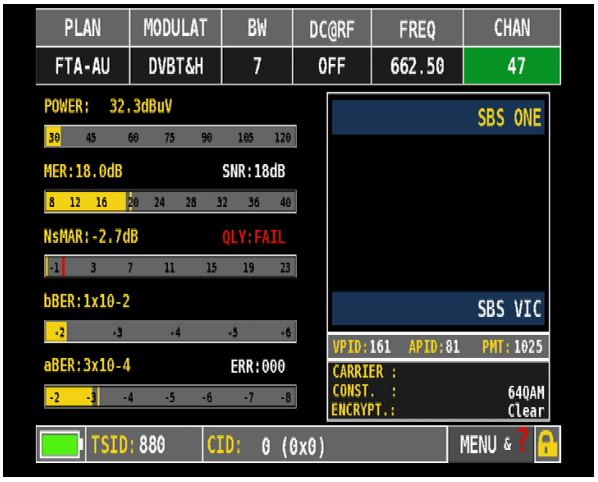


Figure G-27 Channel 48

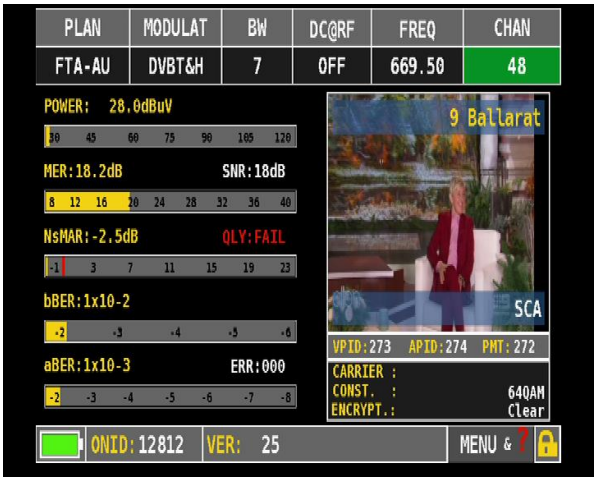


Figure G-28 Channel 49

Figure G-29 Channel 50

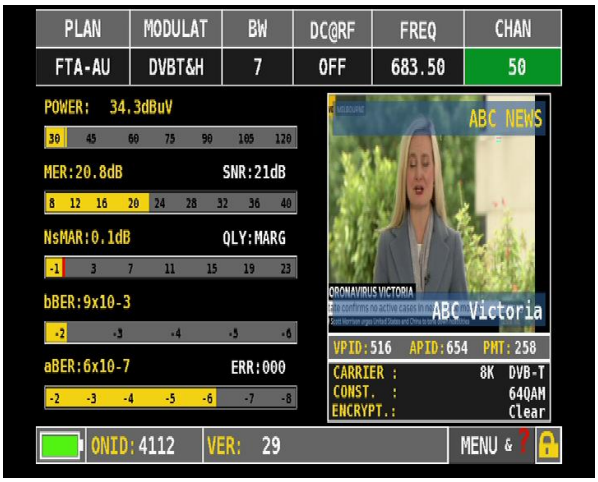
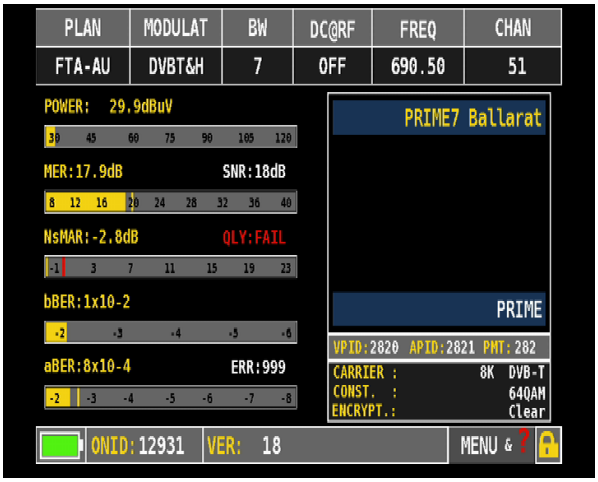


Figure G-30 Channel 51



M43

Figure G-31 Antenna Aiming

Figure G-32 Channel 47

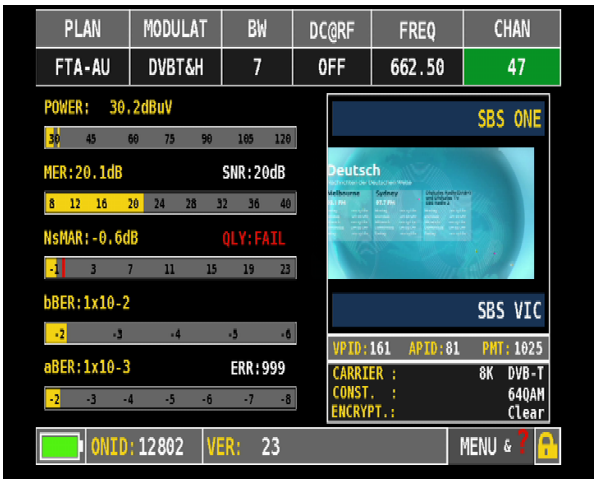


Figure G-33 Channel 48

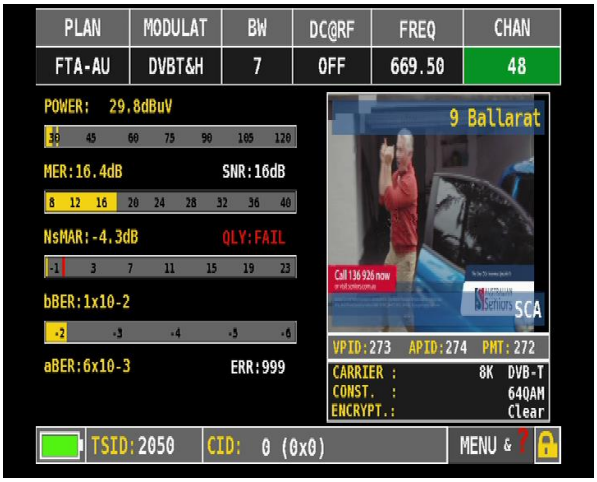
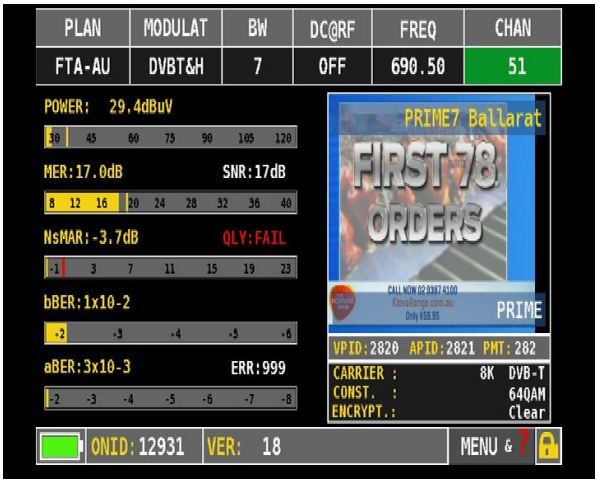


Figure G-34 Channel 49

Figure G-35 Channel 50

Figure G-36 Channel 51



M46 - Horizontal

Figure G-37 Antenna Aiming

Figure G-38 Channel 47

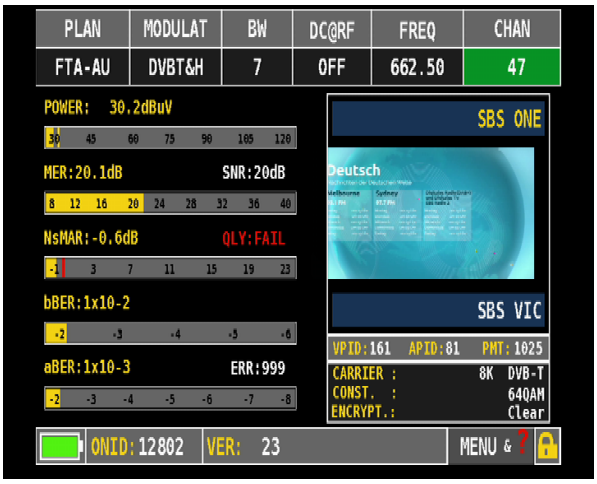


Figure G-39 Channel 48

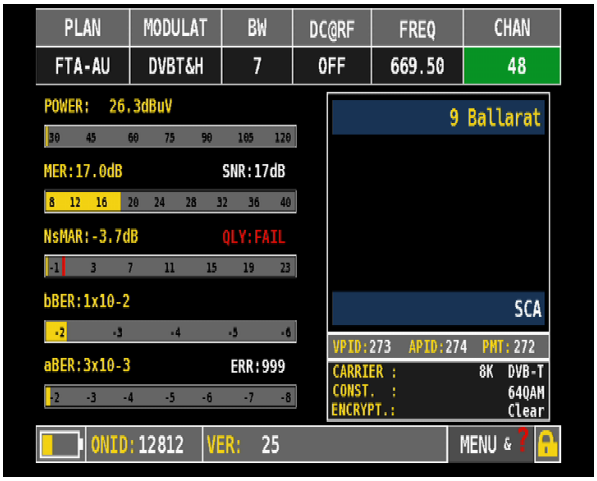


Figure G-40 Channel 49

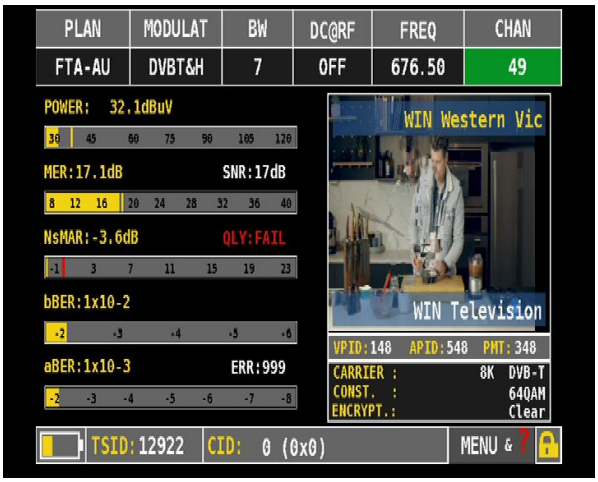


Figure G-41 Channel 50

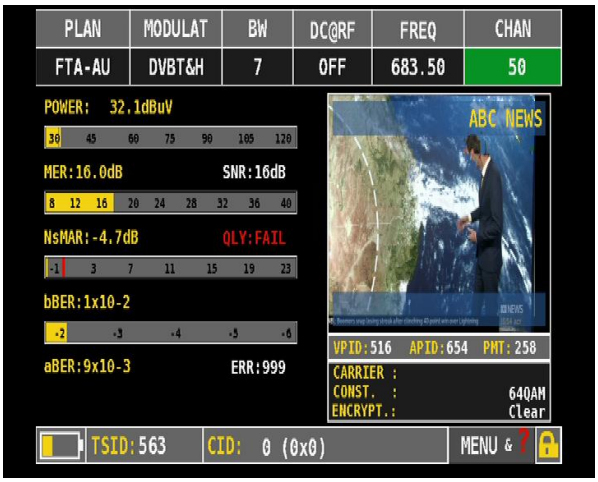
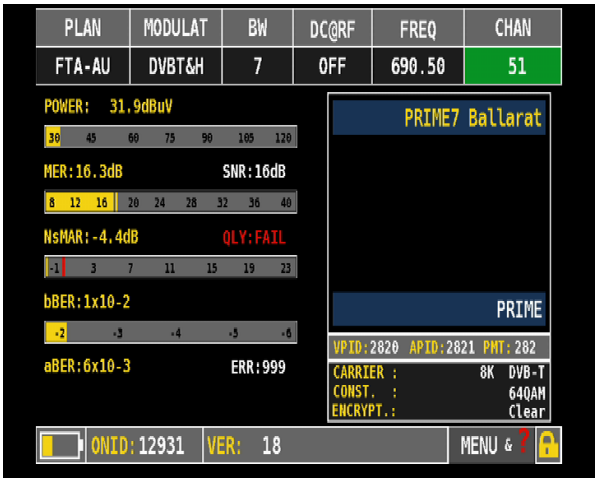


Figure G-42 Channel 51



M46 - Vertical

Figure G-43 Antenna Aiming

Figure G-44 Channel 47

Figure G-45 Channel 48

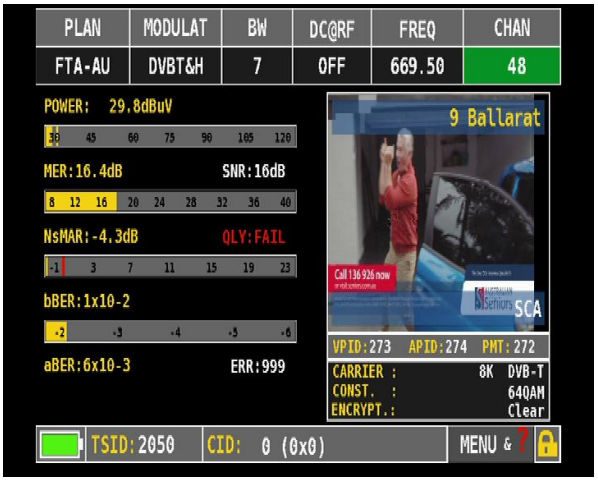


Figure G-46 Channel 49

Figure G-47 Channel 50

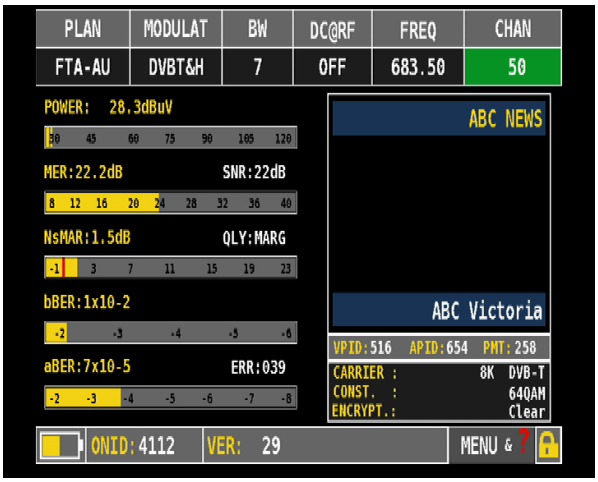
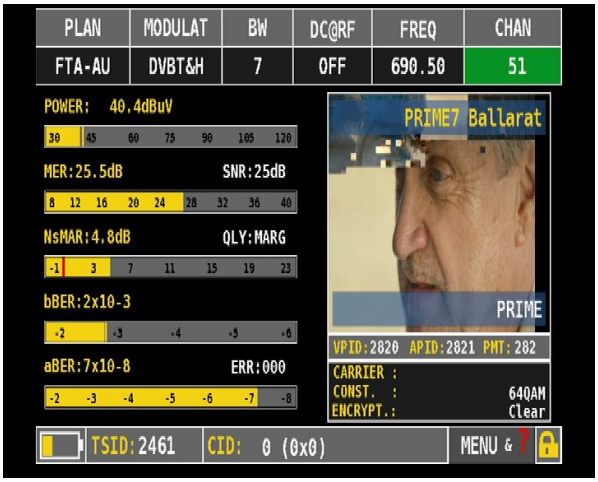


Figure G-48 Channel 51



M47

Figure G-49 Antenna Aiming

Figure G-50 Channel 47

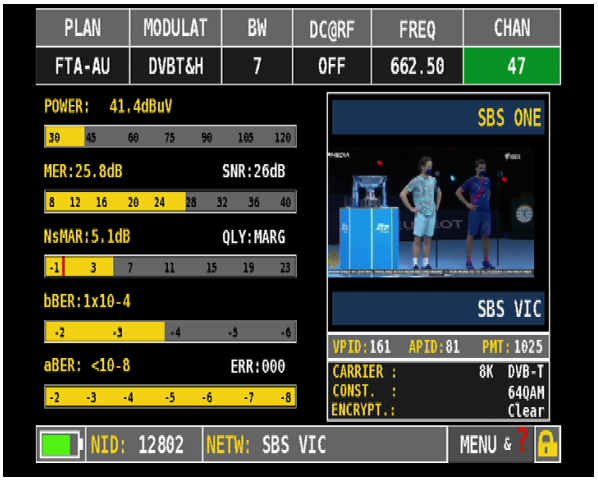


Figure G-51 Channel 48

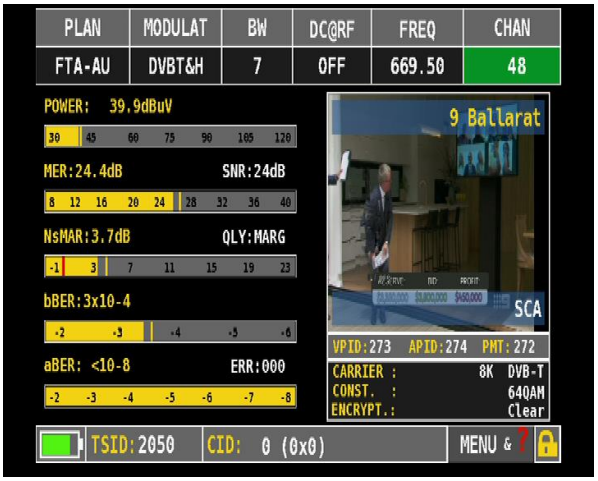


Figure G-52 Channel 49

Figure G-53 Channel 50

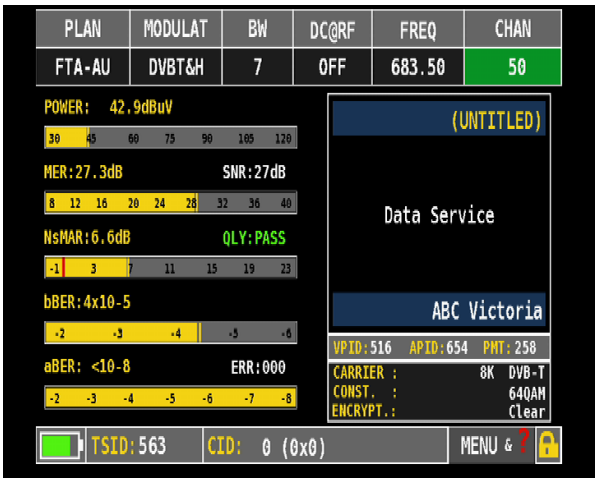


Figure G-54 Channel 51

M48

Figure G-55 Antenna Aiming

Figure G-56 Channel 47

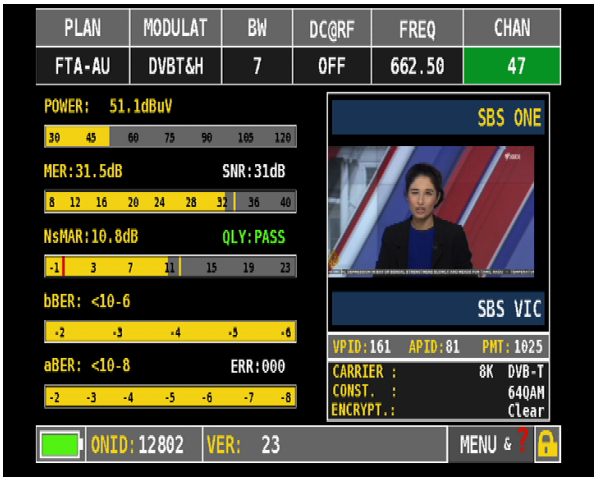


Figure G-57 Channel 48

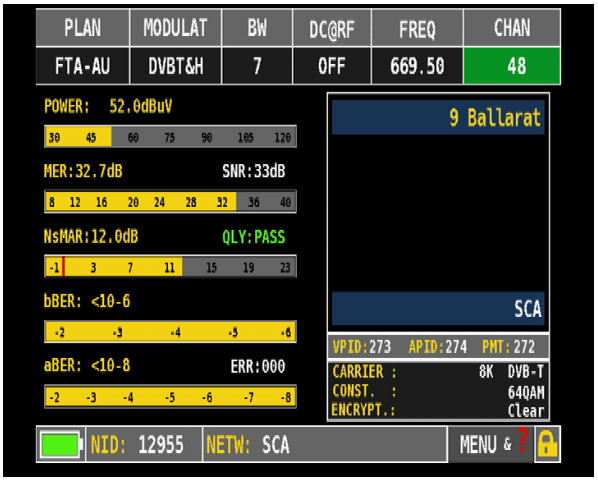


Figure G-58 Channel 49

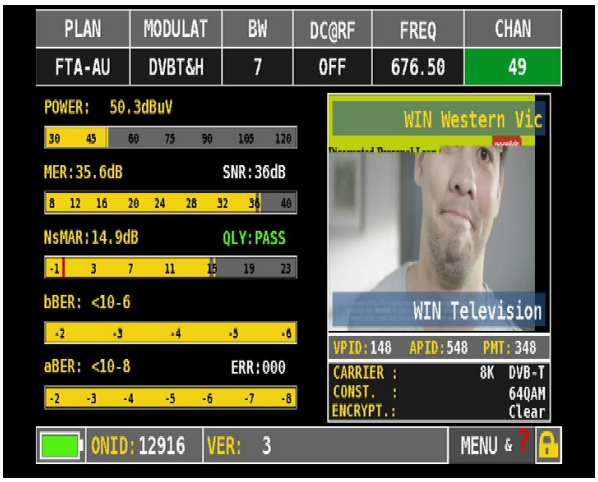
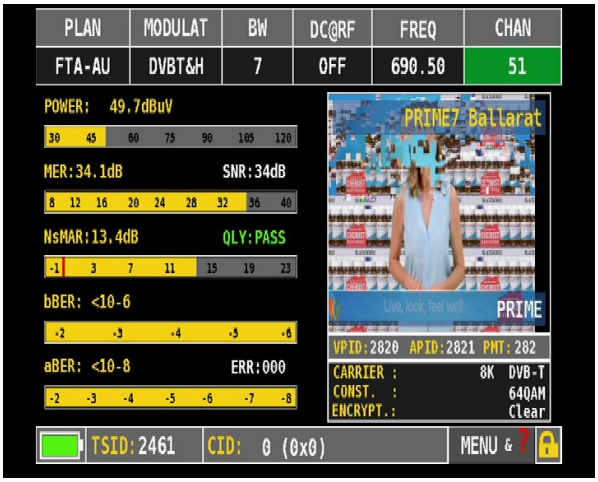


Figure G-59 Channel 50

Figure G-60 Channel 51



M49

Figure G-61 Antenna Aiming

Figure G-62 Channel 47

Figure G-63 Channel 48

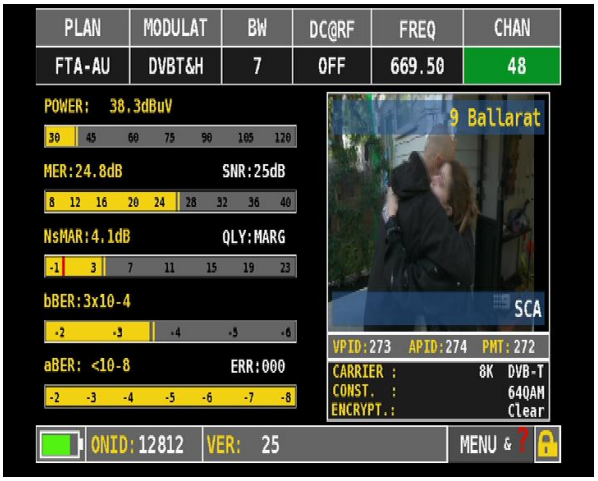


Figure G-64 Channel 49

Figure G-65 Channel 50

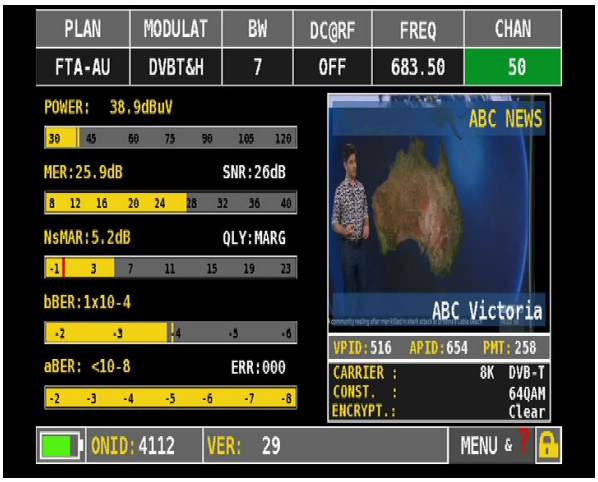
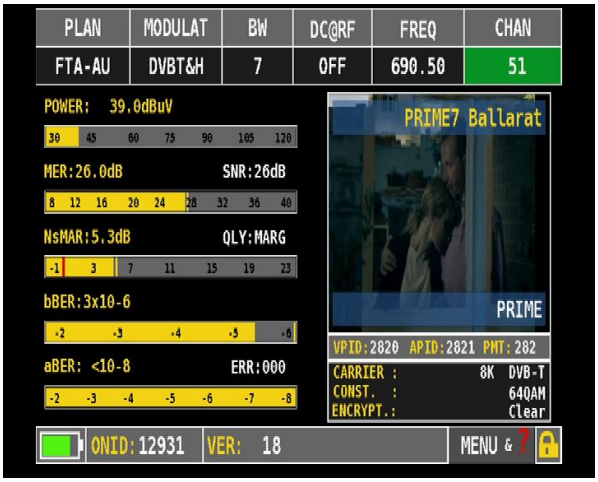


Figure G-66 Channel 51



M50

Figure G-67 Antenna Aiming

Figure G-68 Channel 47

Figure G-69 Channel 48

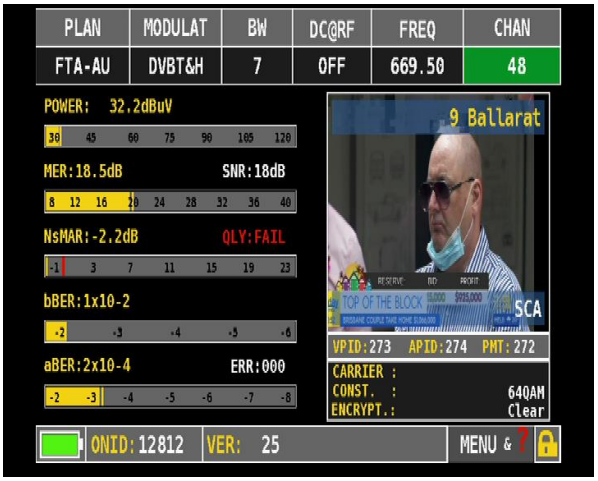


Figure G-70 Channel 49

Figure G-71 Channel 50

Figure G-72 Channel 51

M51

Figure G-73 Antenna Aiming

Figure G-74 Channel 47

Figure G-75 Channel 48

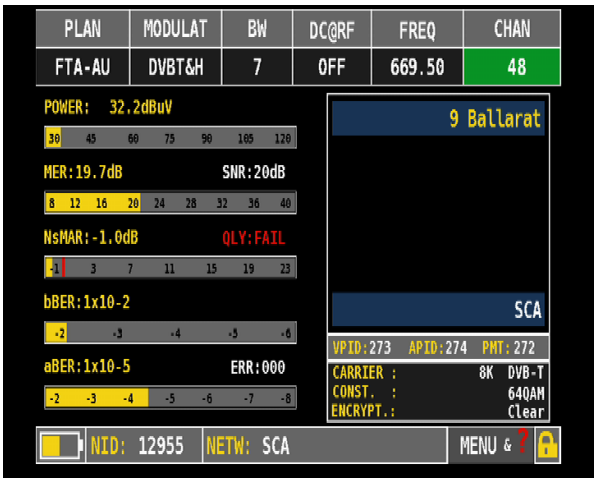


Figure G-76 Channel 49

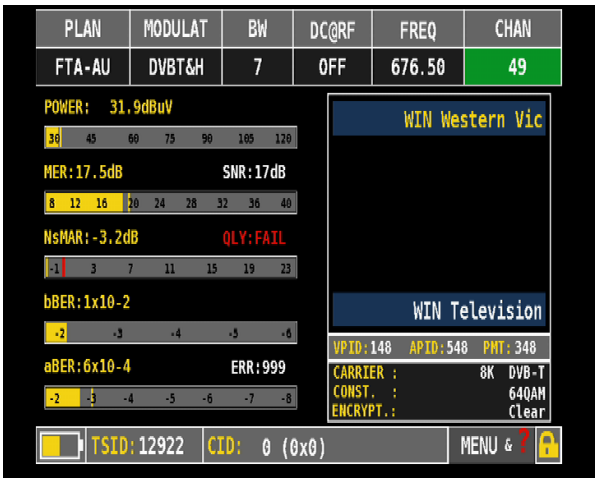


Figure G-77 Channel 50

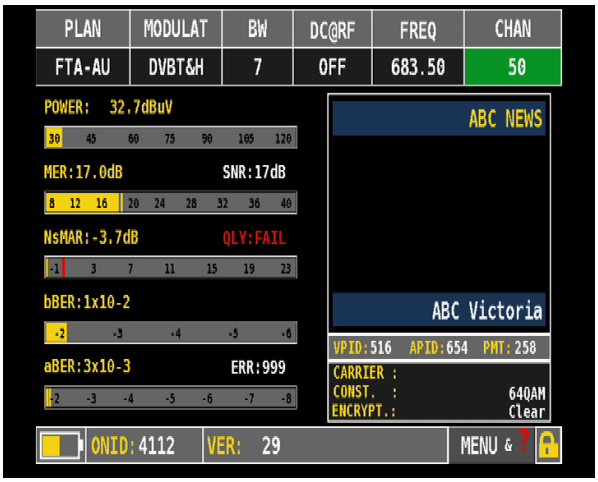
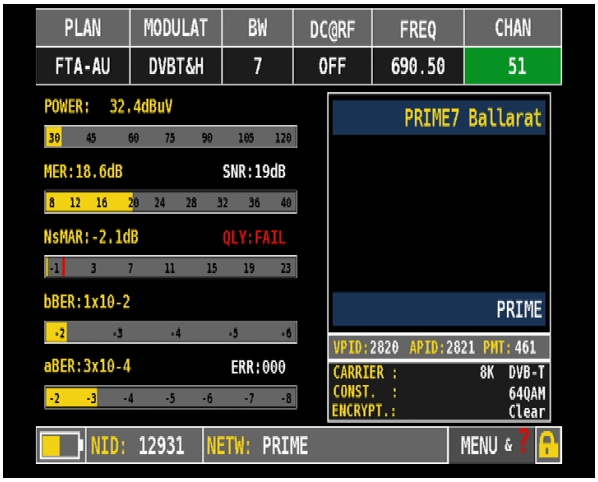


Figure G-78 Channel 51



M53

Figure G-79 Antenna Aiming

Figure G-80 Channel 47

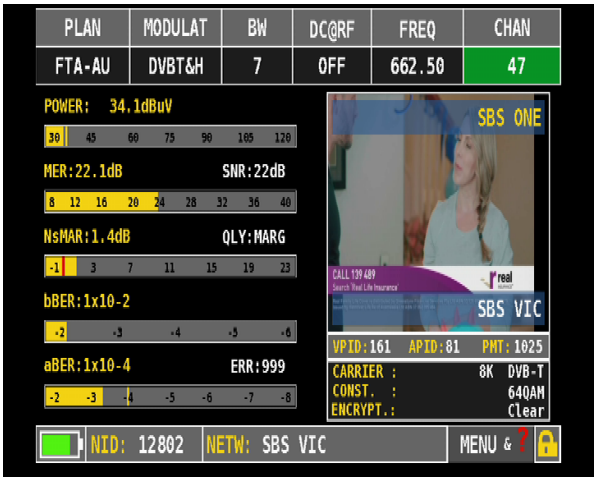


Figure G-81 Channel 48

Figure G-82 Channel 49

Figure G-83 Channel 50

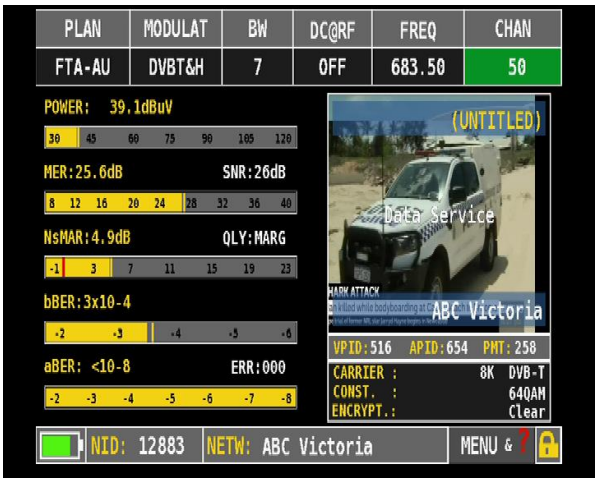
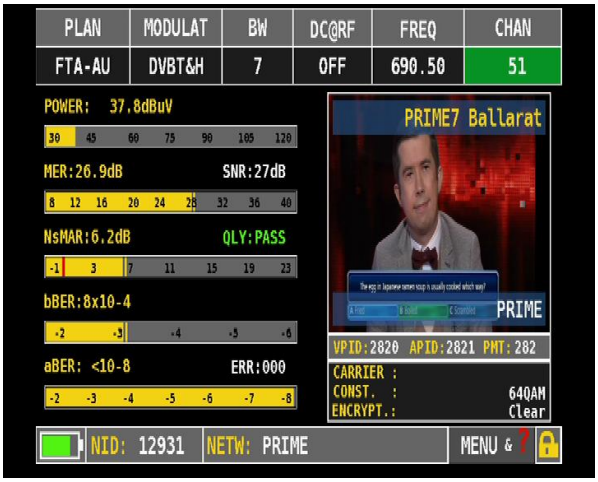


Figure G-84 Channel 51



M54

Figure G-85 Antenna Aiming

Figure G-86 Channel 47

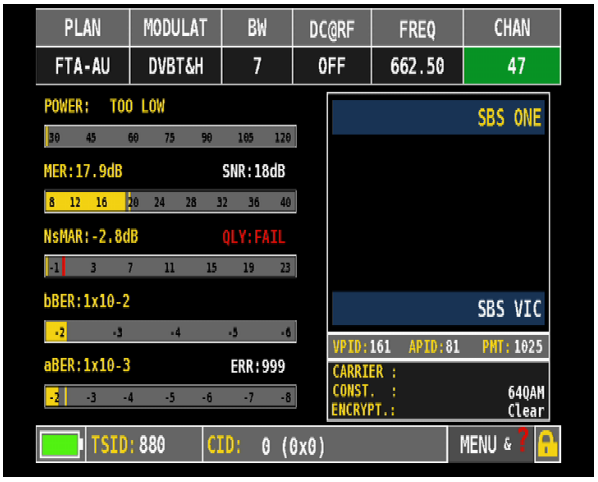


Figure G-87 Channel 48

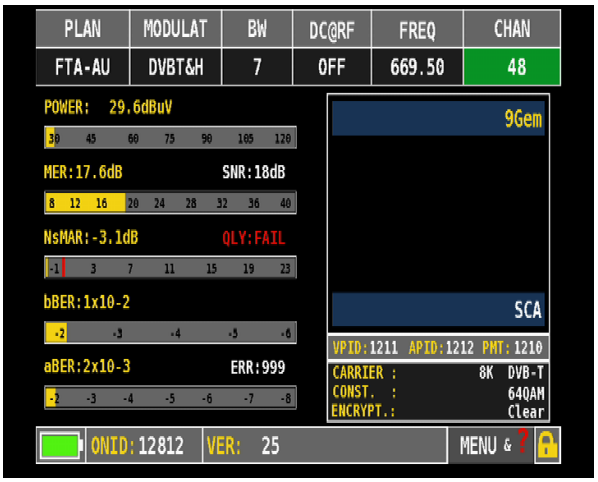


Figure G-88 Channel 49

Figure G-89 Channel 50

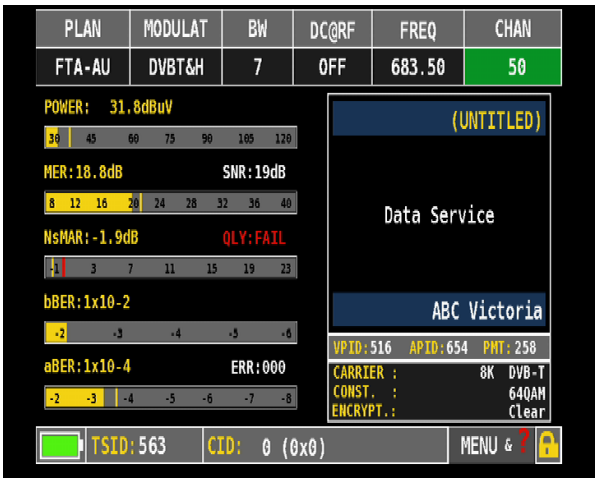


Figure G-90 Channel 51

M55

Figure G-91 Antenna Aiming

Figure G-92 Channel 47

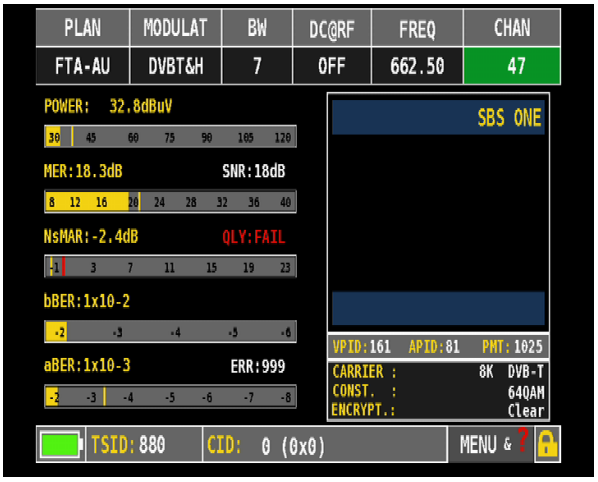


Figure G-93 Channel 48

Figure G-94 Channel 49

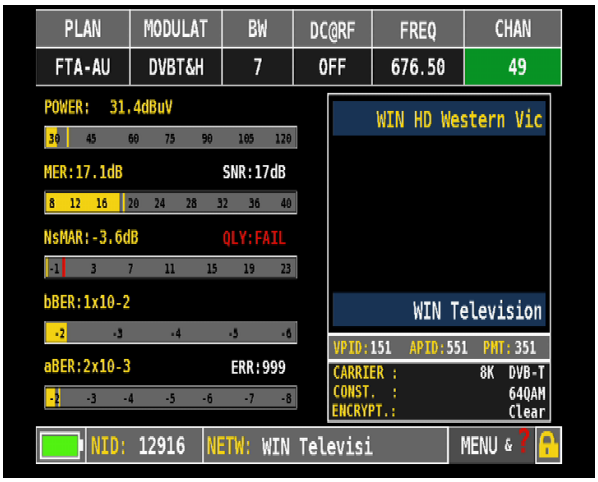
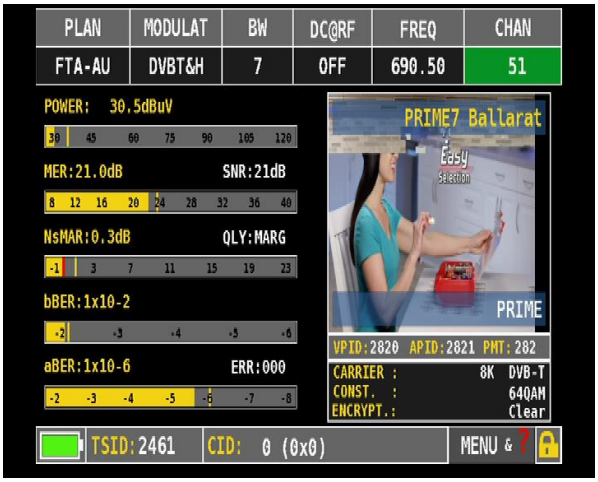


Figure G-95 Channel 50

Figure G-96 Channel 51



M57

Figure G-97 Antenna Aiming

Figure G-98 Channel 47

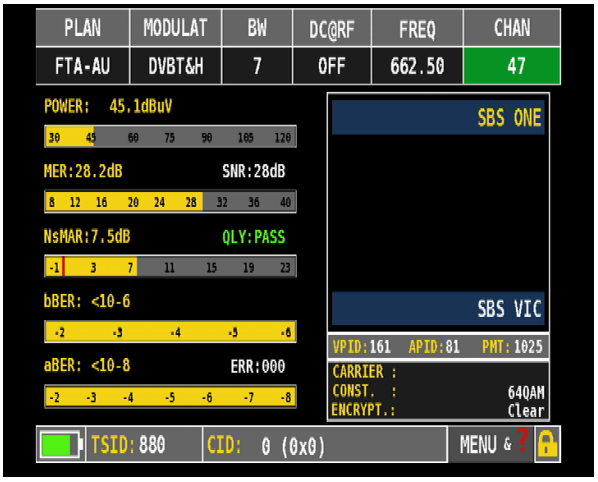


Figure G-99 Channel 48

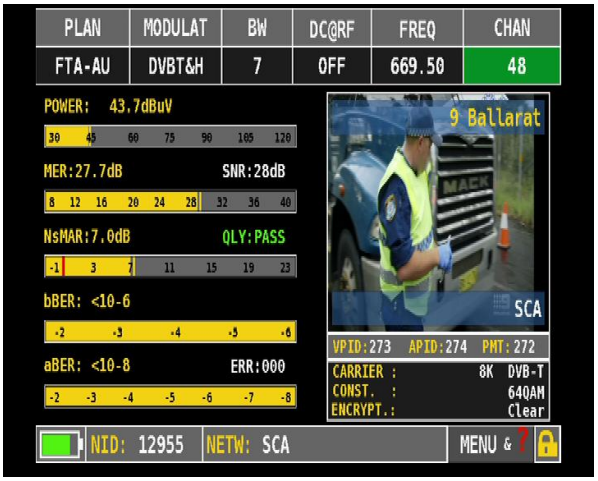


Figure G-100 Channel 49

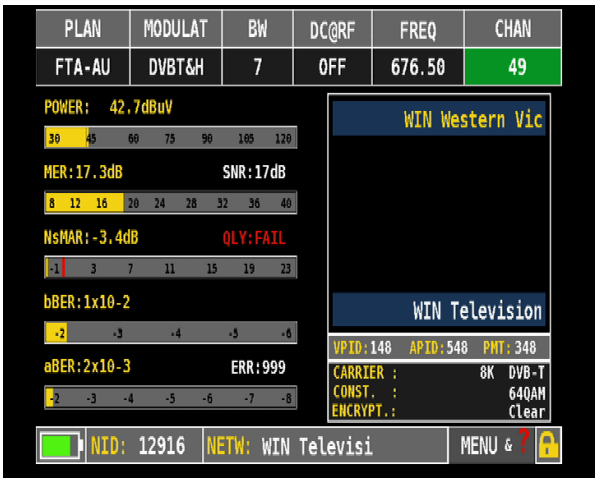
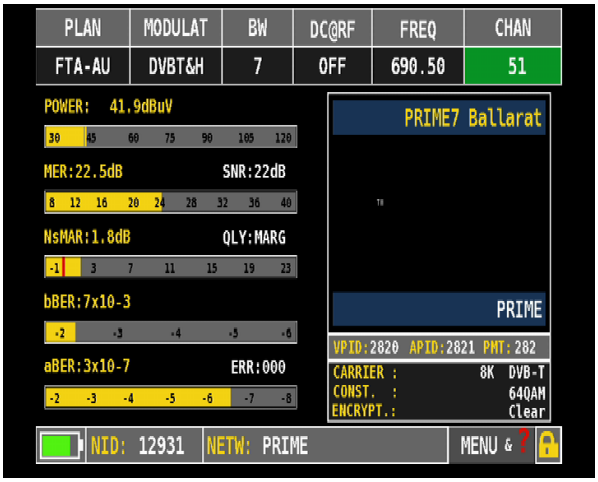


Figure G-101 Channel 50

Figure G-102 Channel 51



M58 – Horizontal

Figure G-103 Channel 47

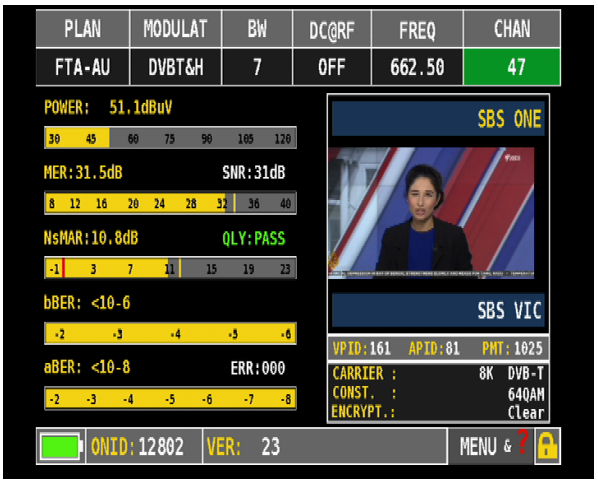


Figure G-104 Channel 48

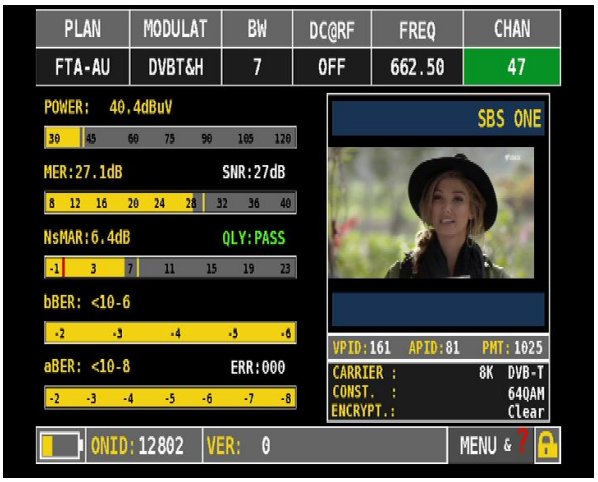


Figure G-105 Channel 49

Figure G-106 Channel 50

Figure G-107 Channel 51

M58 - Vertical

Figure G-108 Antenna Aiming

Figure G-109 Channel 47

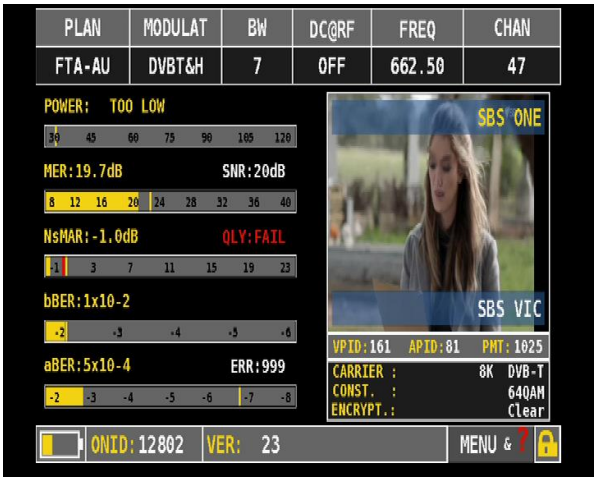


Figure G-110 Channel 48

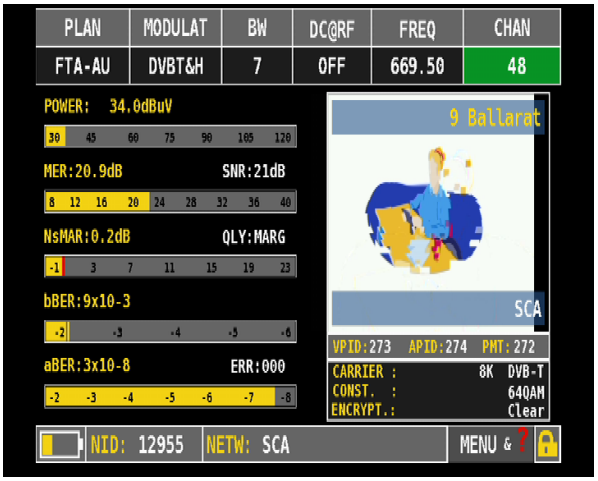
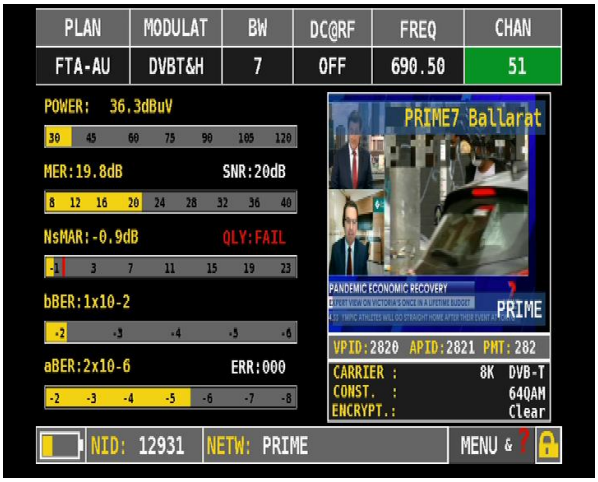


Figure G-111 Channel 49

Figure G-112 Channel 50

Figure G-113 Channel 51



M59

Figure G-114 Antenna Aiming

Figure G-115 Channel 47

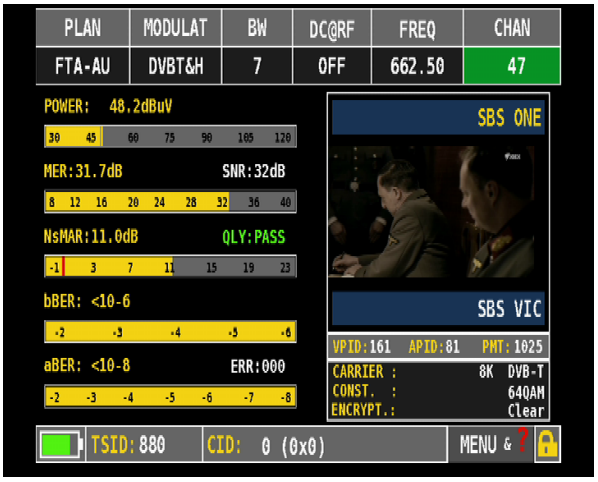


Figure G-116 Channel 48

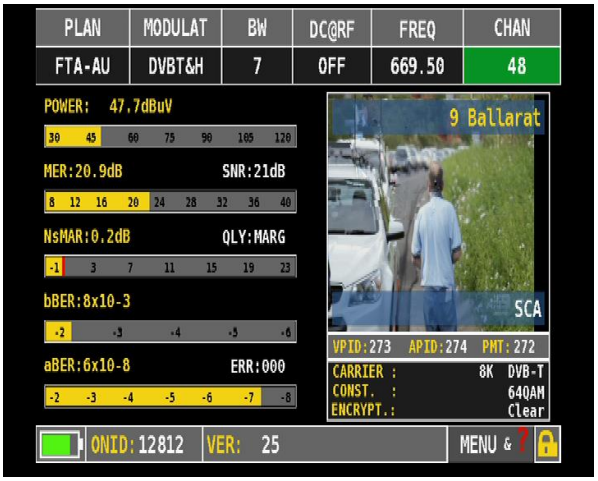


Figure G-117 Channel 49

Figure G-118 Channel 50

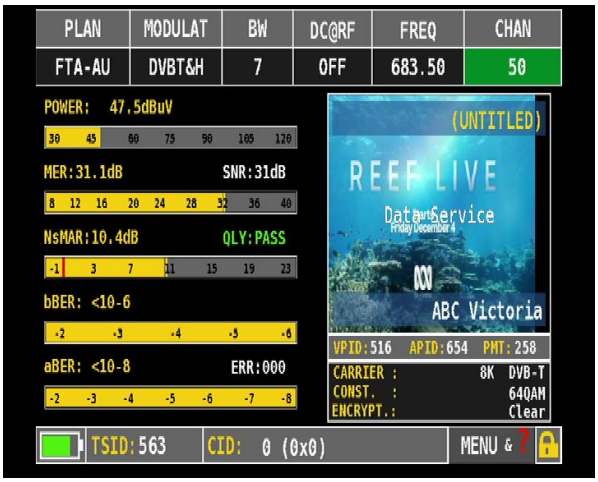
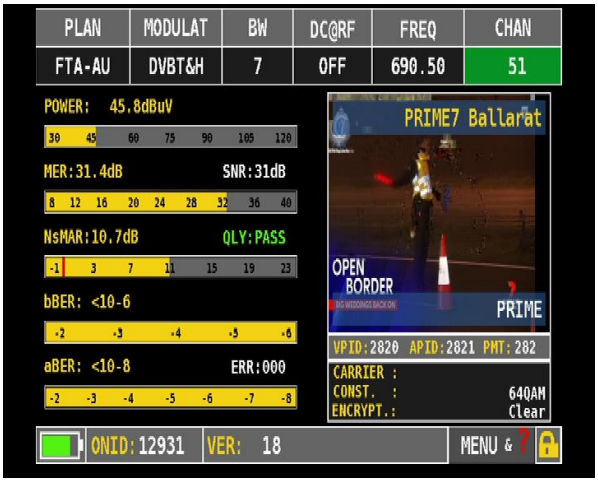


Figure G-119 Channel 51



M60

Figure G-120 Antenna Aiming

Figure G-121 Channel 47

Figure G-122 Channel 48

Figure G-123 Channel 49

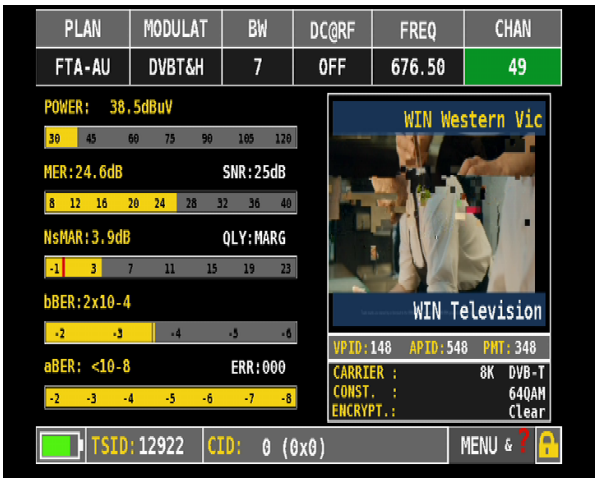
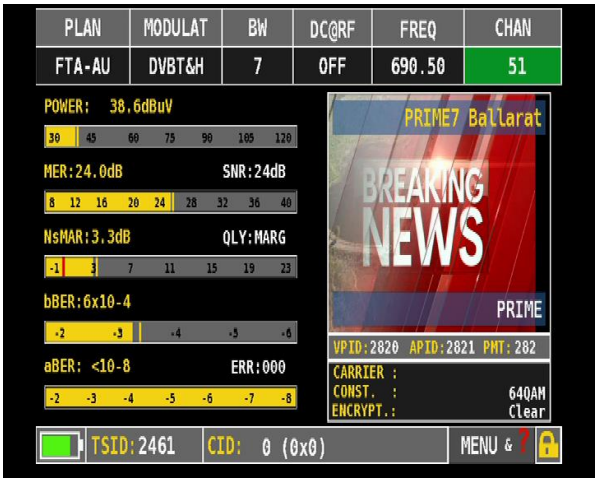


Figure G-124 Channel 50

Figure G-125 Channel 51



M62

Figure G-126 Antenna Aiming

Figure G-127 Channel 47

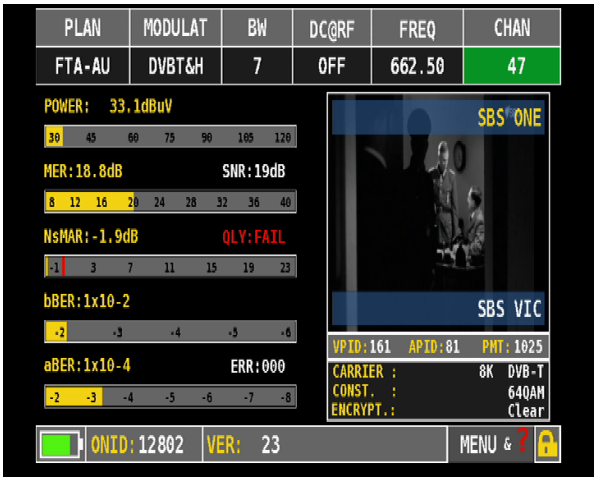
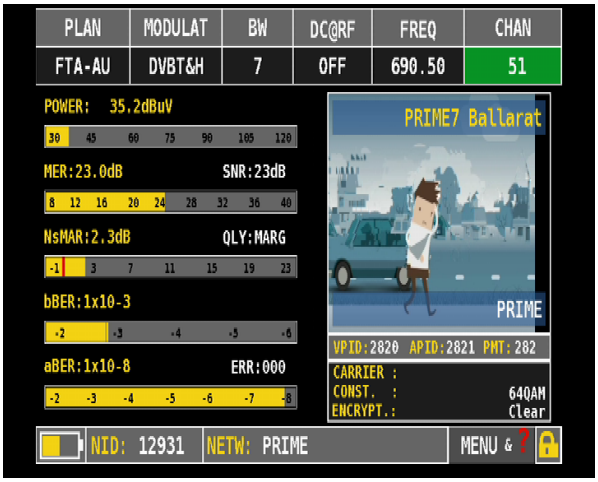


Figure G-128 Channel 48

Figure G-129 Channel 49

Figure G-130 Channel 50

Figure G-131 Channel 51



M64

Figure G-132 Antenna Aiming

Figure G-133 Channel 47

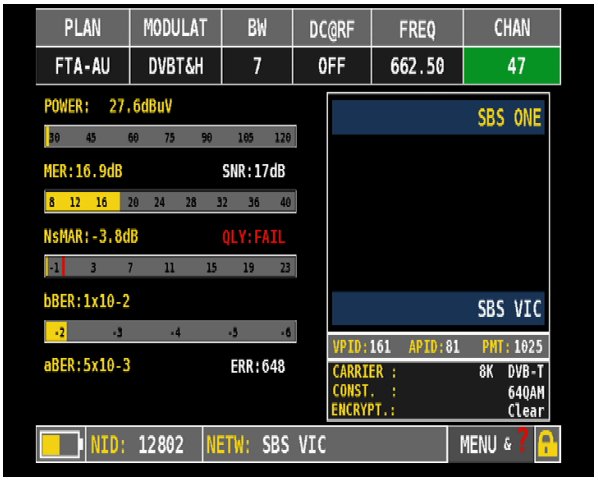


Figure G-134 Channel 48

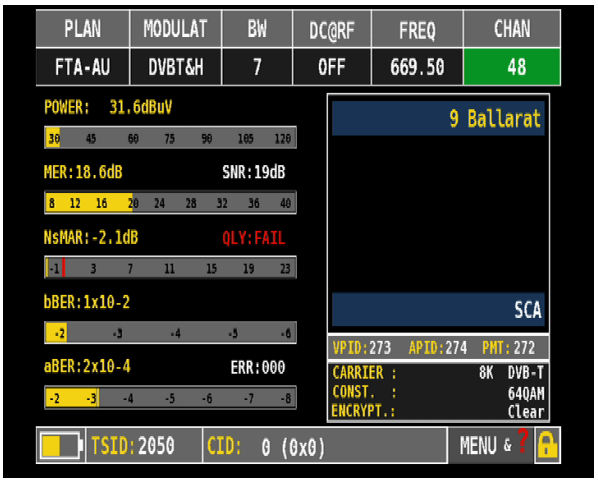


Figure G-135 Channel 49

Figure G-136 Channel 50

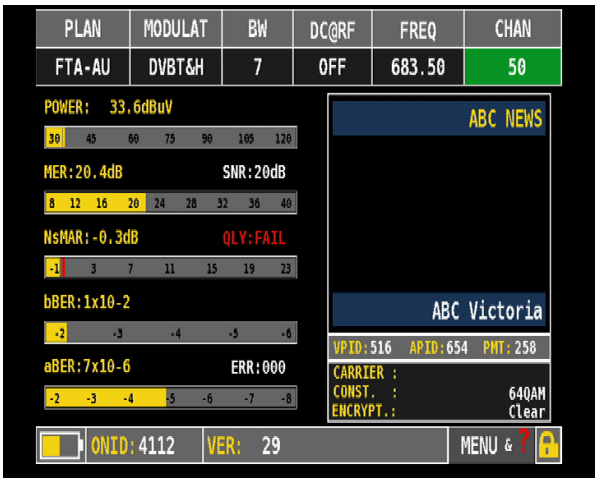
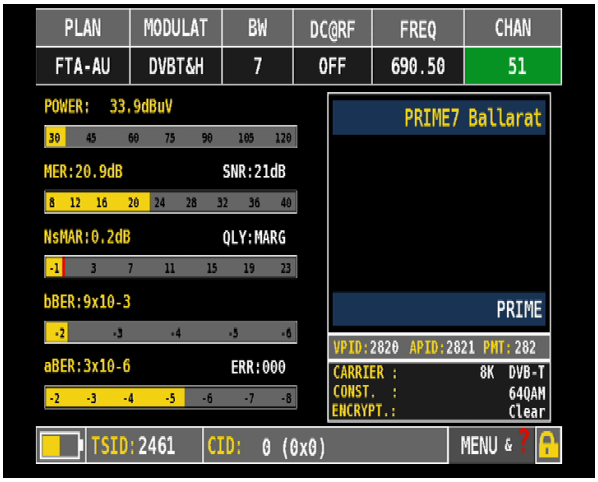


Figure G-137 Channel 51



M66

Figure G-138 Antenna Aiming

Figure G-139 Channel 47

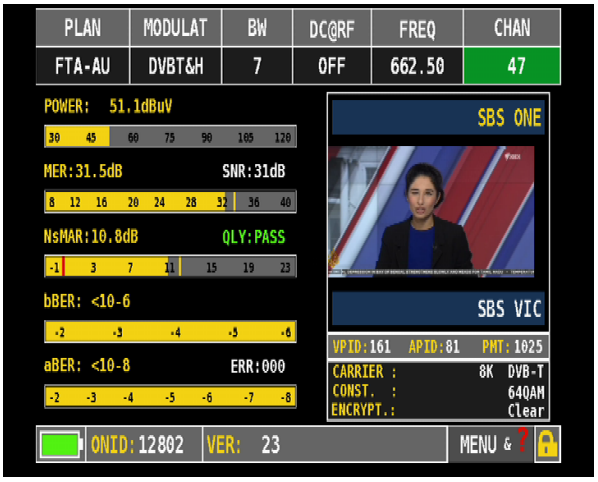


Figure G-140 Channel 48

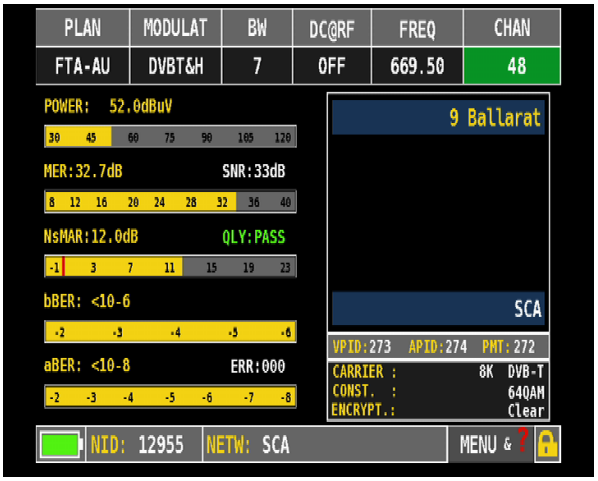


Figure G-141 Channel 49

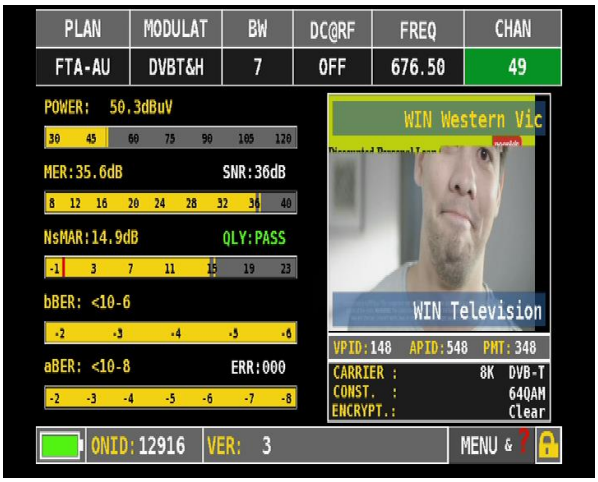
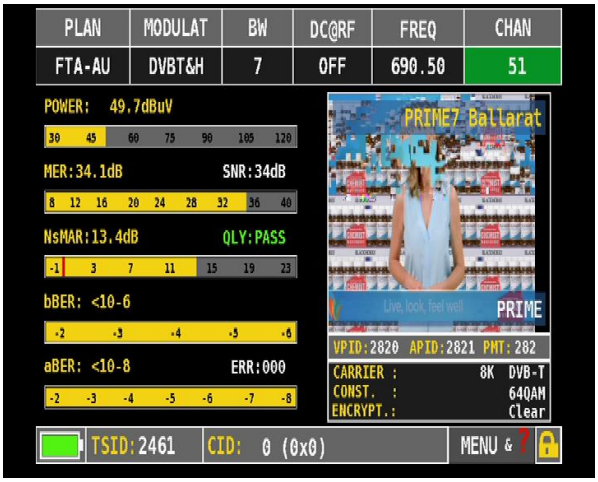


Figure G-142 Channel 50

Figure G-143 Channel 51



M68

Figure G-144 Antenna Aiming

Figure G-145 Channel 47

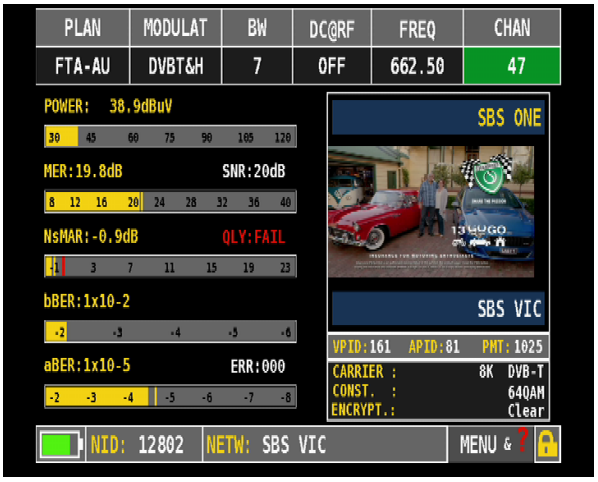


Figure G-146 Channel 48

Figure G-147 Channel 49

Figure G-148 Channel 50

Figure G-149 Channel 51

M69

Figure G-150 Antenna Aiming

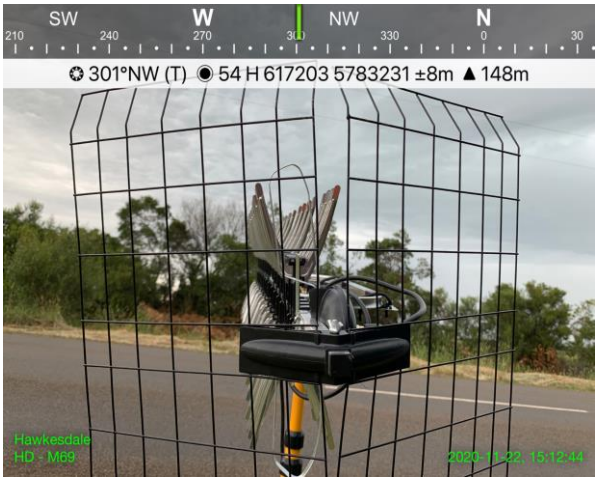


Figure G-151 Channel 47

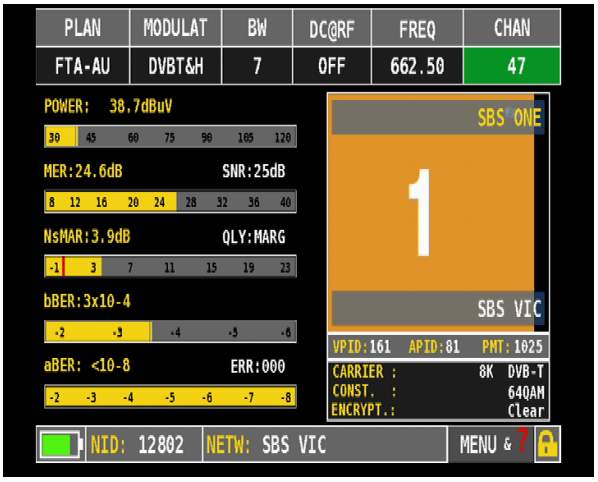


Figure G-152 Channel 48

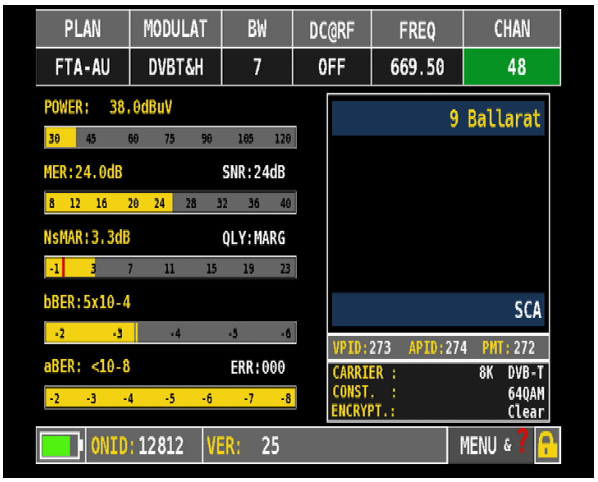


Figure G-153 Channel 49

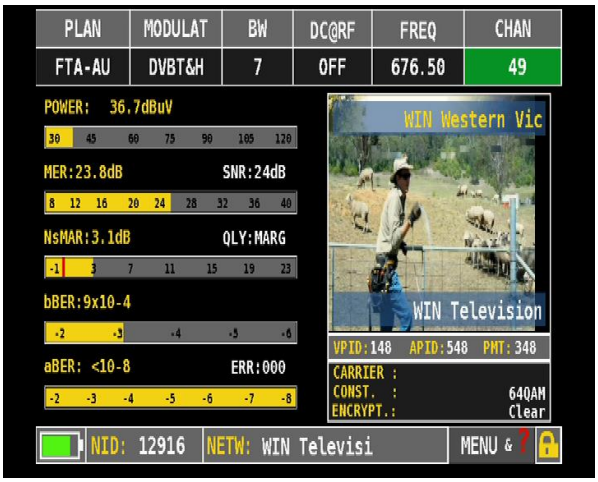


Figure G-154 Channel 50

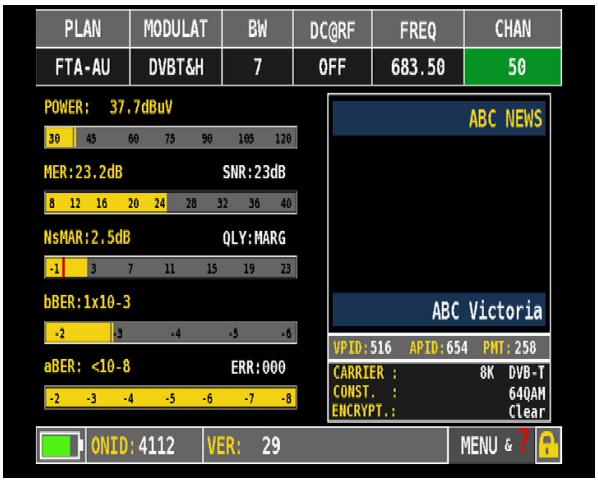


Figure G-155 Channel 51

M70

Figure G-156 Antenna Aiming

Figure G-157 Channel 47

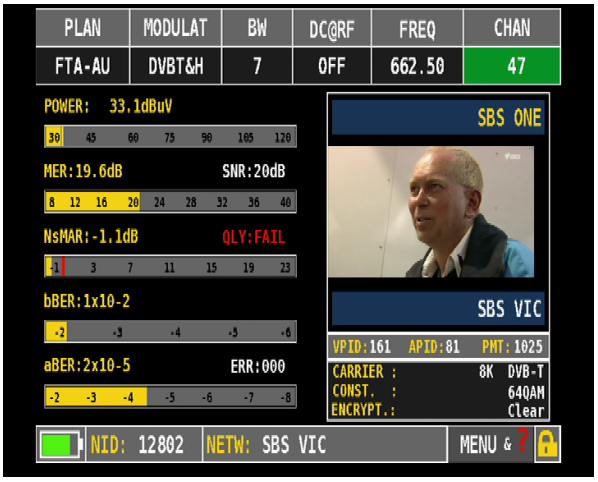


Figure G-158 Channel 48

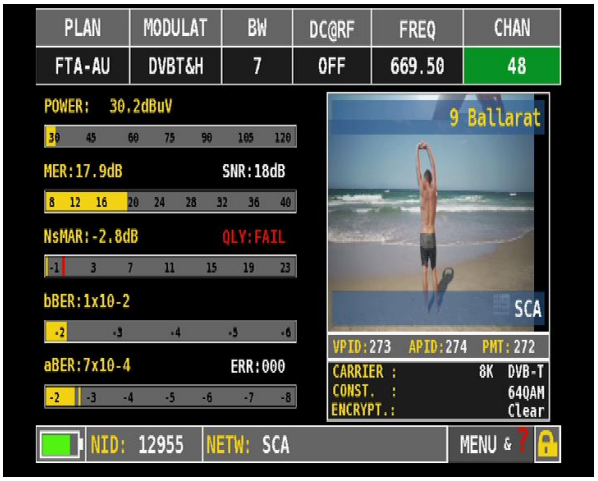


Figure G-159 Channel 49

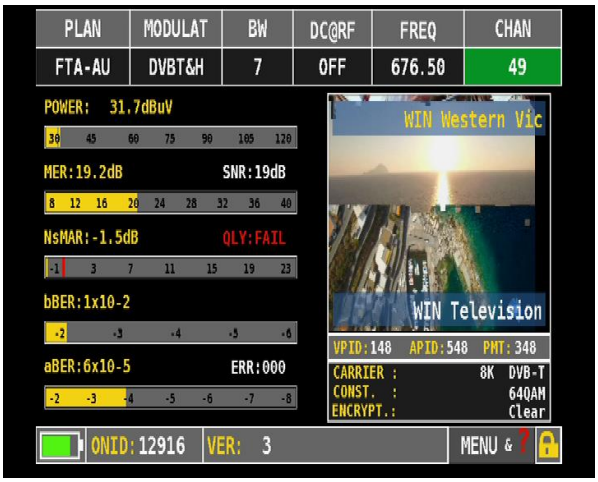
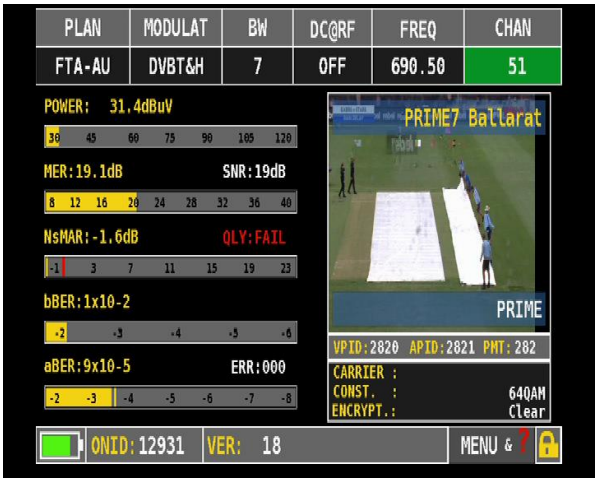


Figure G-160 Channel 50

Figure G-161 Channel 51



M71

Figure G-162 Antenna Aiming

Figure G-163 Channel 47

Figure G-164 Channel 48

Figure G-165 Channel 49

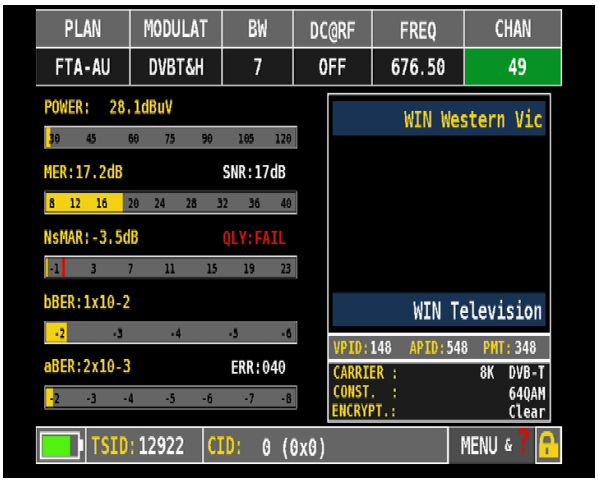
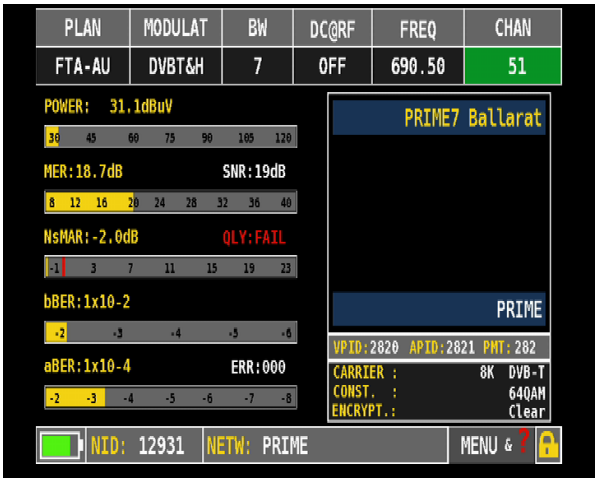


Figure G-166 Channel 50

Figure G-167 Channel 51



M72

Figure G-168 Antenna Aiming

Figure G-169 Channel 47

Figure G-170 Channel 48

Figure G-171 Channel 49

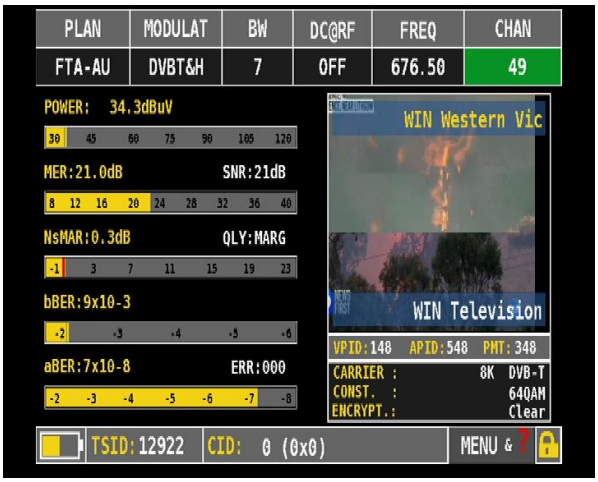
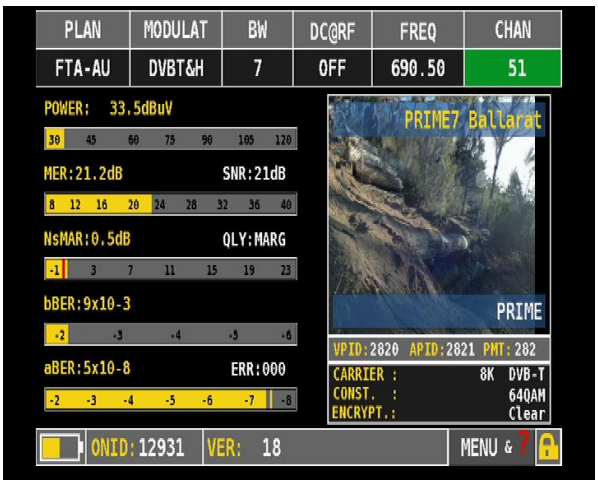


Figure G-172 Channel 50

Figure G-173 Channel 51



M73

Figure G-174 Antenna Aiming

Figure G-175 Channel 47

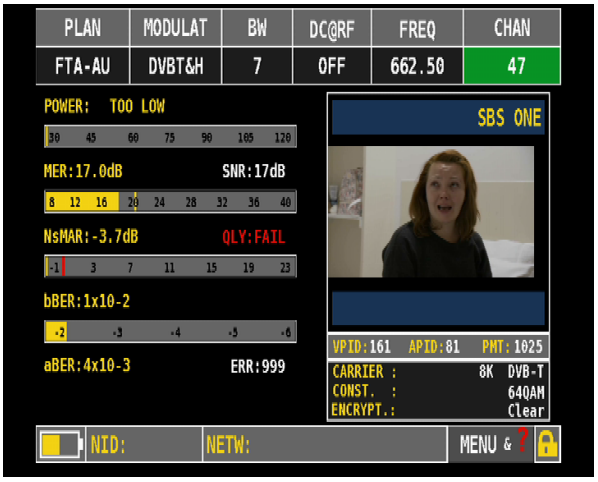


Figure G-176 Channel 48

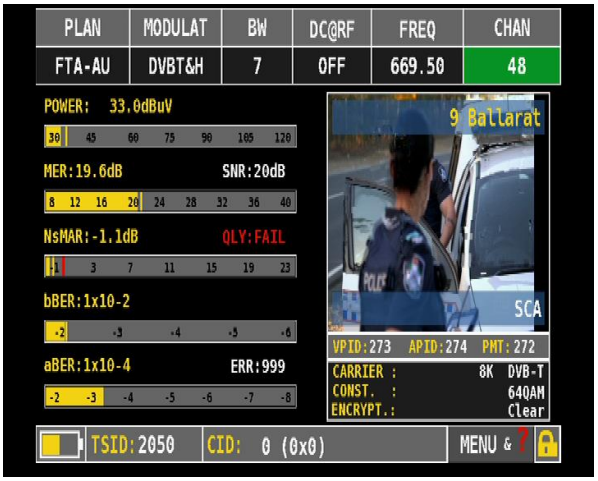


Figure G-177 Channel 49

Figure G-178 Channel 50

Figure G-179 Channel 51

M74

Figure G-180 Antenna Aiming

Figure G-181 Channel 47

Figure G-182 Channel 48

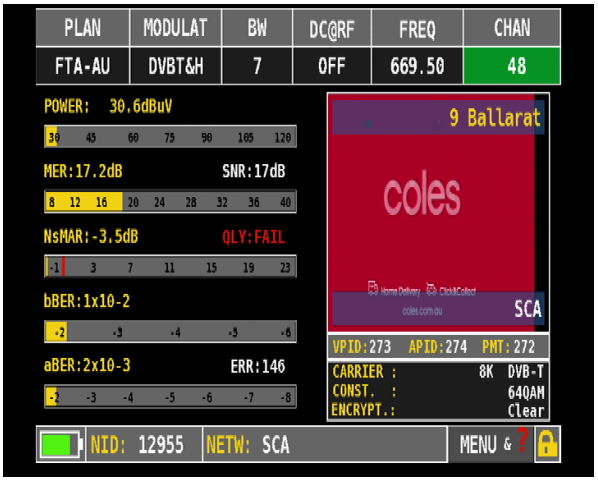


Figure G-183 Channel 49

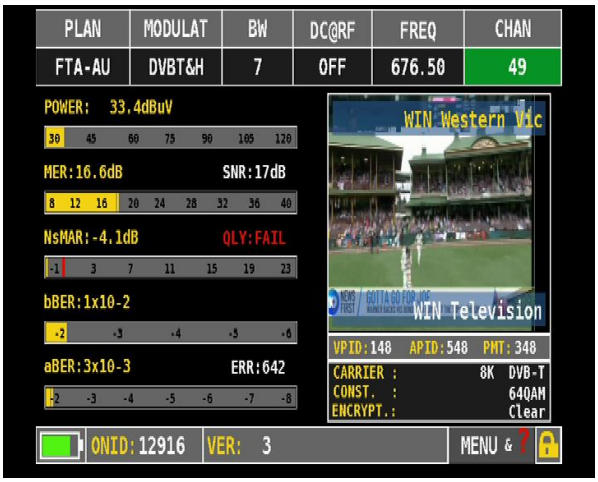
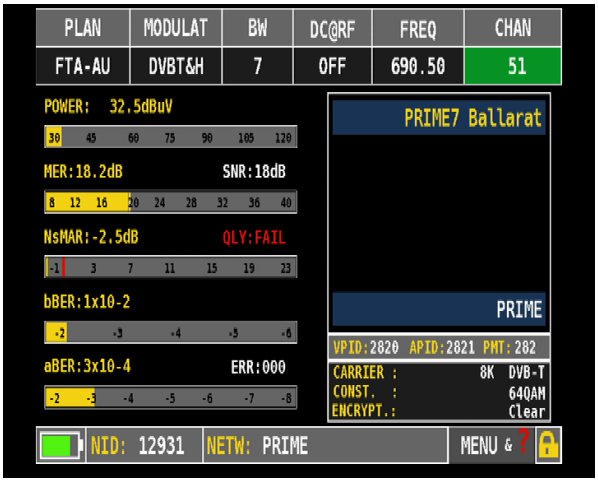


Figure G-184 Channel 50

Figure G-185 Channel 51



M75

Figure G-186 Antenna Aiming

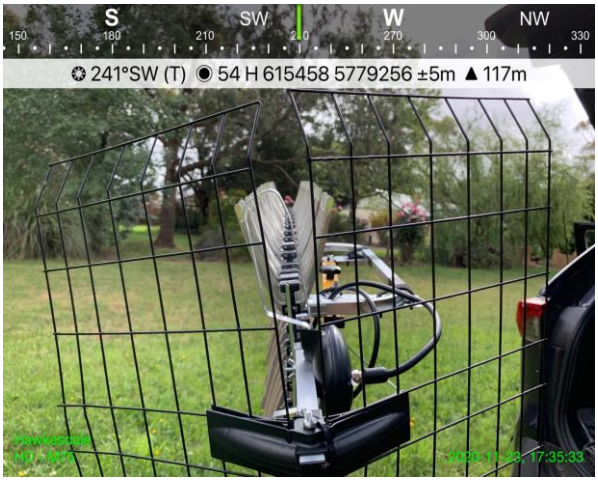


Figure G-187 Channel 47

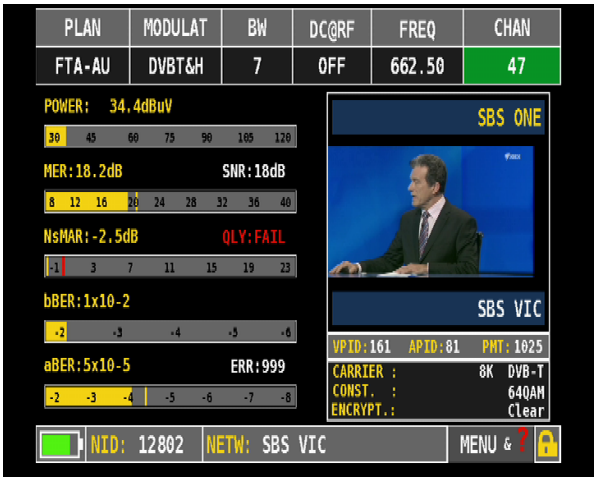


Figure G-188 Channel 48

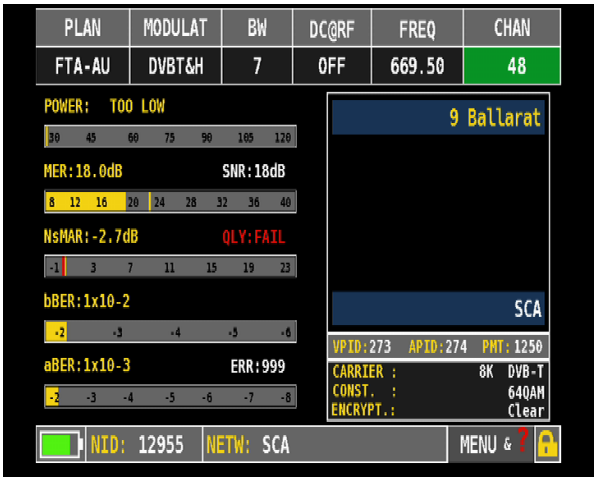
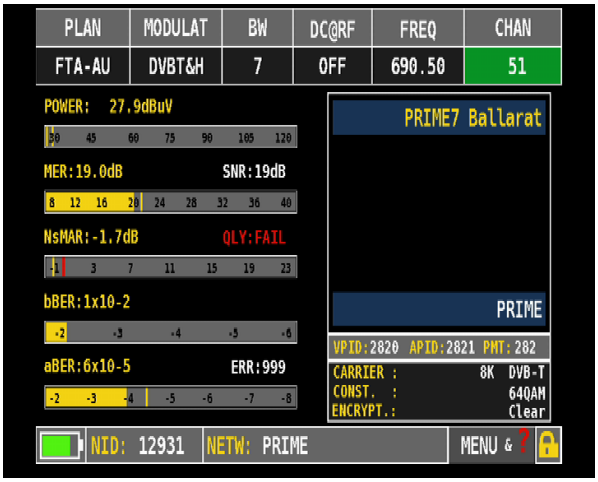


Figure G-189 Channel 49

Figure G-190 Channel 50

Figure G-191 Channel 51



M77

Figure G-192 Antenna Aiming

Figure G-193 Channel 47

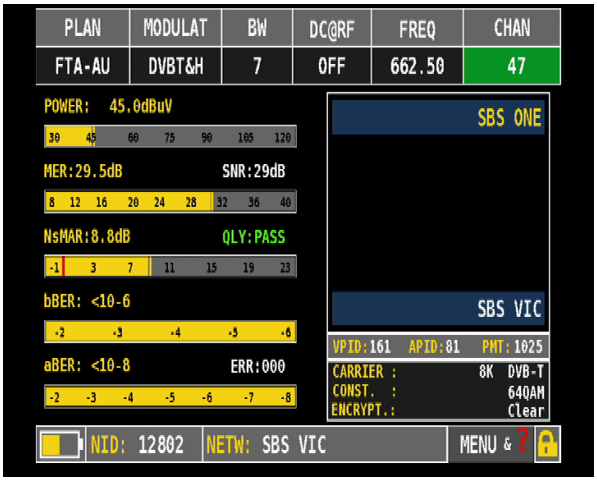


Figure G-194 Channel 48

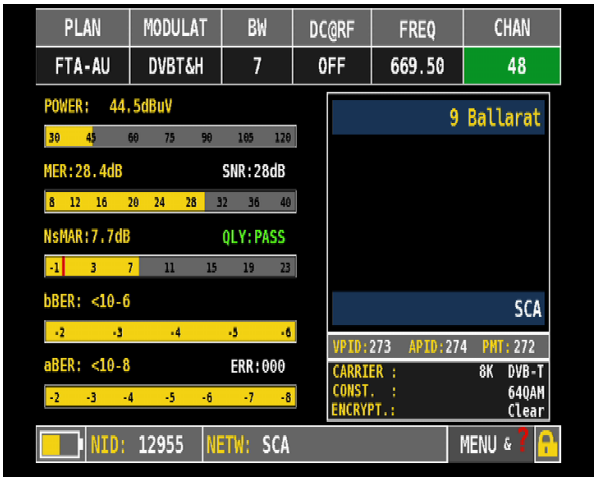


Figure G-195 Channel 49

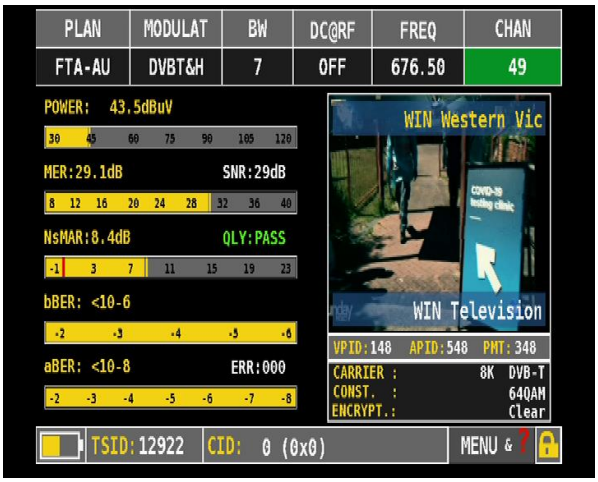


Figure G-196 Channel 50

Figure G-197 Channel 51

M78

Figure G-198 Antenna Aiming

Figure G-199 Channel 47

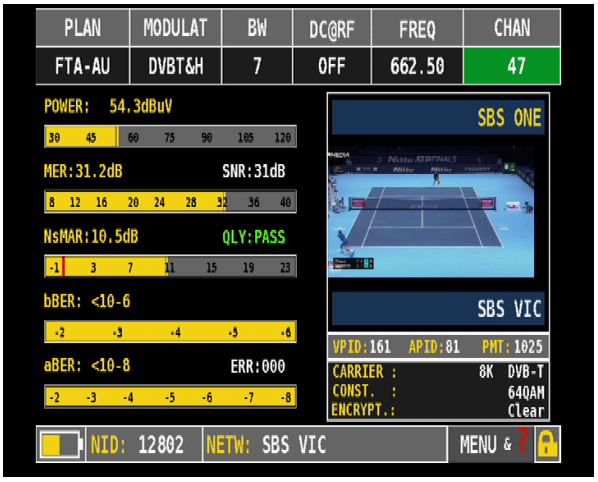
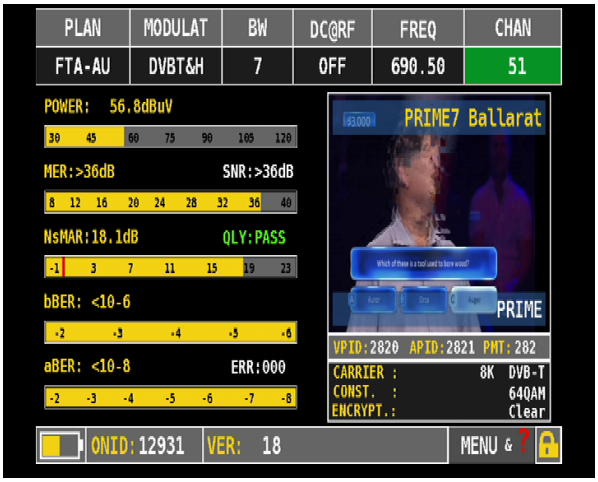


Figure G-200 Channel 48

Figure G-201 Channel 49

Figure G-202 Channel 50

Figure G-203 Channel 51



M79

Figure G-204 Antenna Aiming

Figure G-205 Channel 47

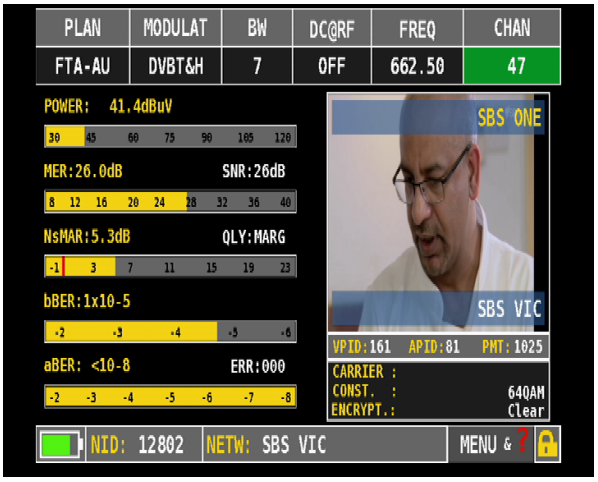


Figure G-206 Channel 48

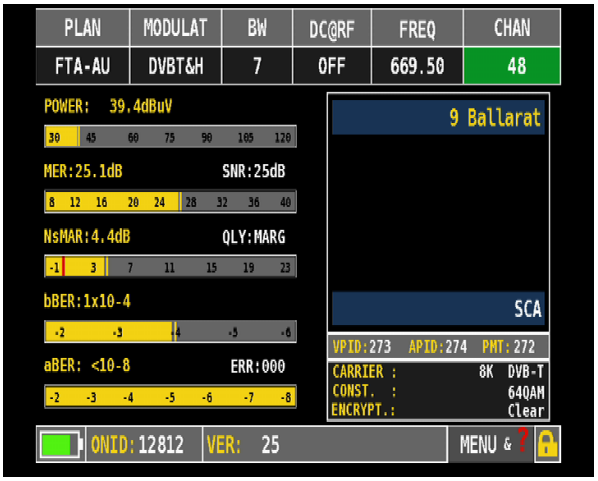


Figure G-207 Channel 49

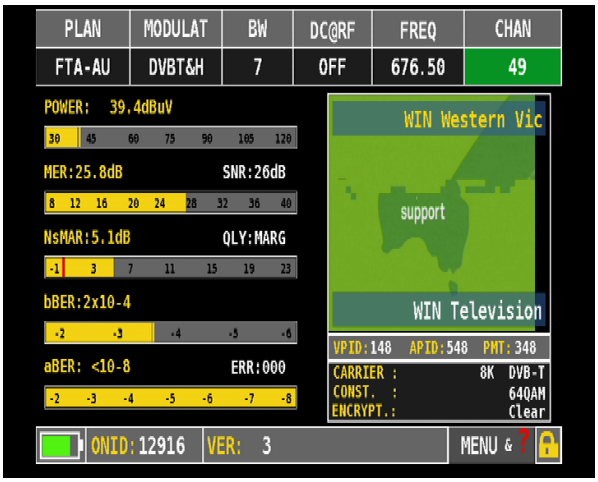
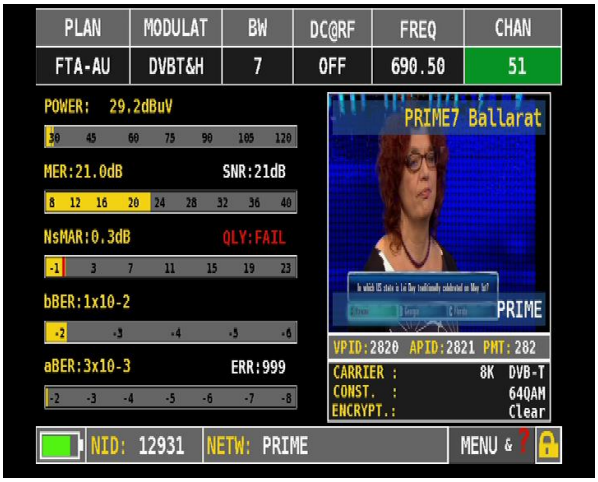


Figure G-208 Channel 50

Figure G-209 Channel 51



M80

Figure G-210 Antenna Aiming

Figure G-211 Channel 47

Figure G-212 Channel 48

Figure G-213 Channel 49

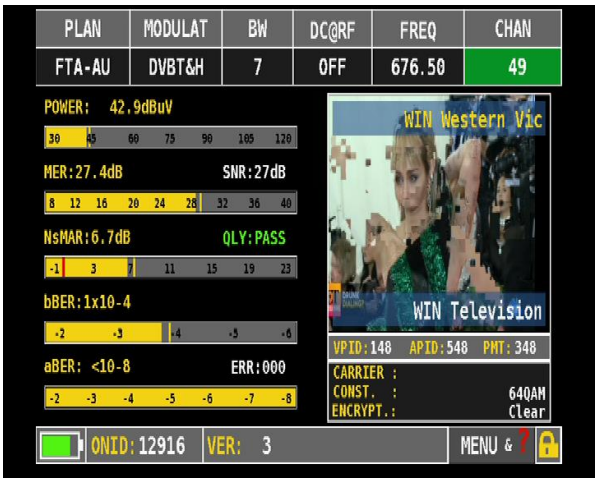
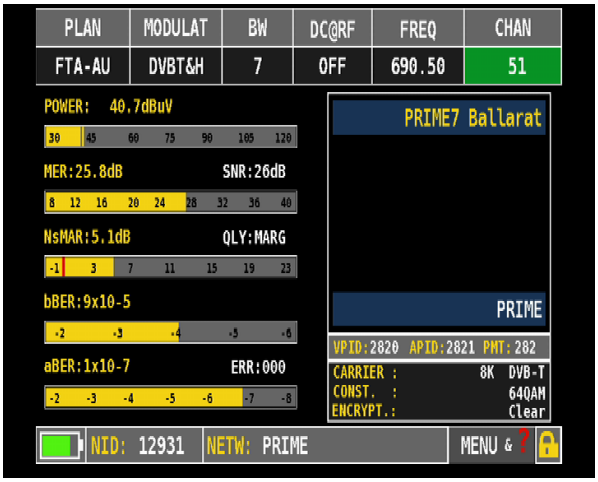


Figure G-214 Channel 50

Figure G-215 Channel 51



M83

Figure G-216 Antenna Aiming

Figure G-217 Channel 47

Figure G-218 Channel 48

Figure G-219 Channel 49

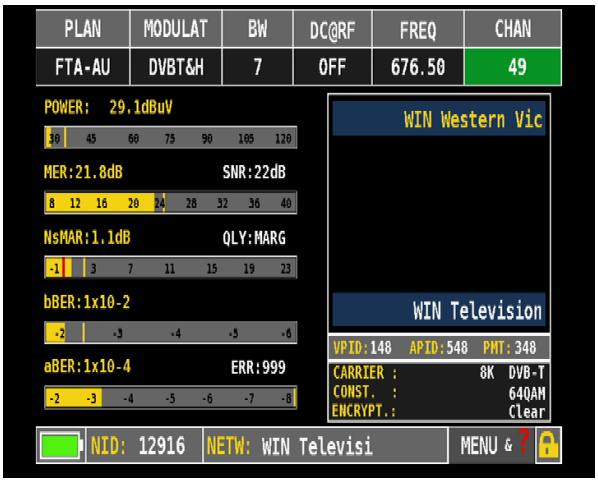


Figure G-220 Channel 50

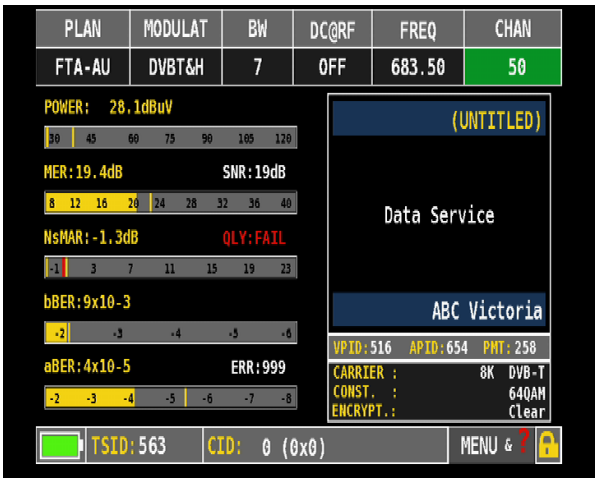
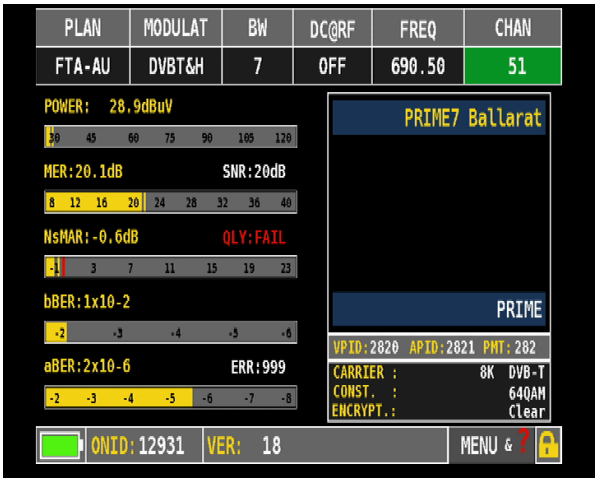


Figure G-221 Channel 51



M84

Figure G-222 Antenna Aiming

Figure G-223 Channel 47

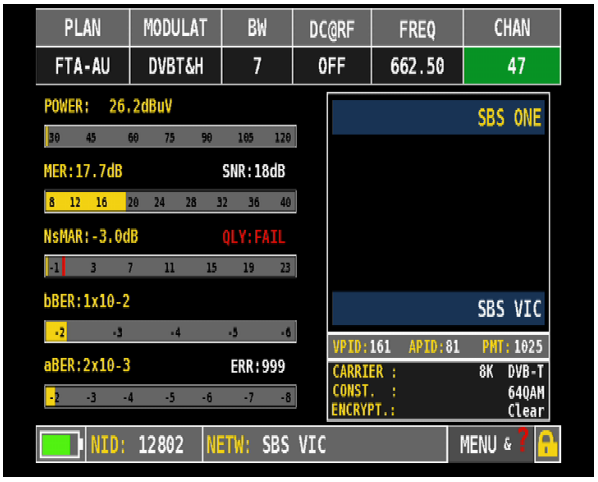


Figure G-224 Channel 48

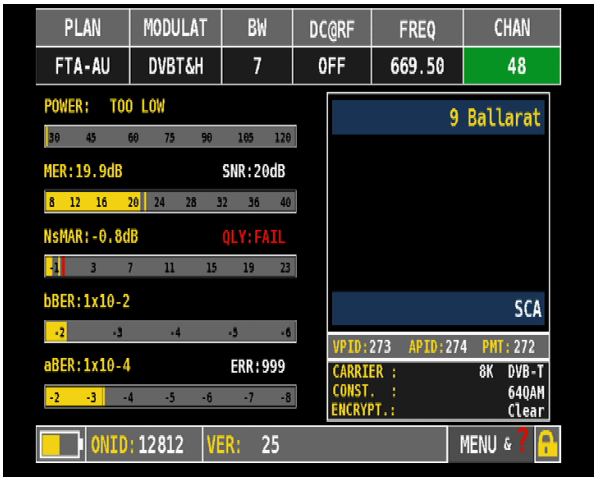
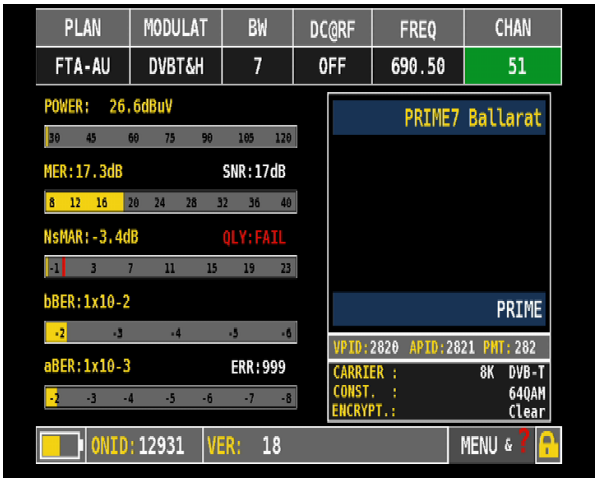


Figure G-225 Channel 49

Figure G-226 Channel 50

Figure G-227 Channel 51



M87

Figure G-228 Antenna Aiming

Figure G-229 Channel 47

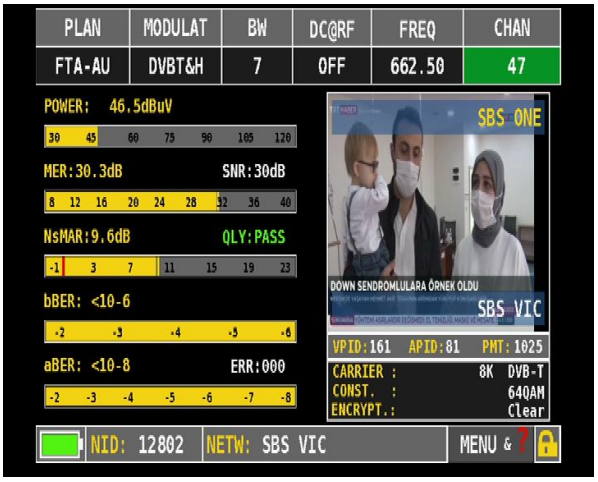


Figure G-230 Channel 48

Figure G-231 Channel 49

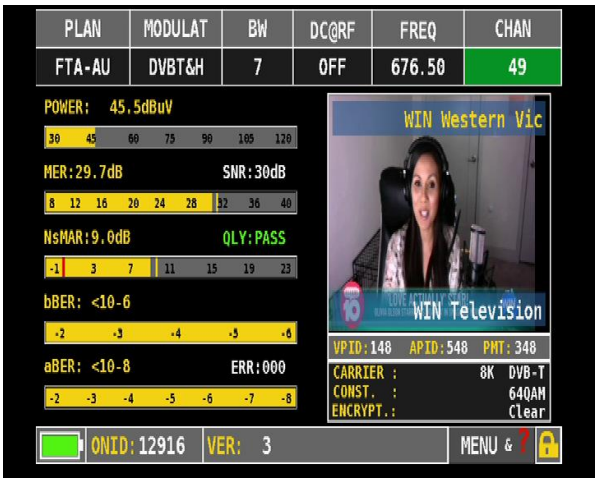


Figure G-232 Channel 50

Figure G-233 Channel 51

M88

Figure G-234 Antenna Aiming

Figure G-235 Channel 47

Figure G-236 Channel 48

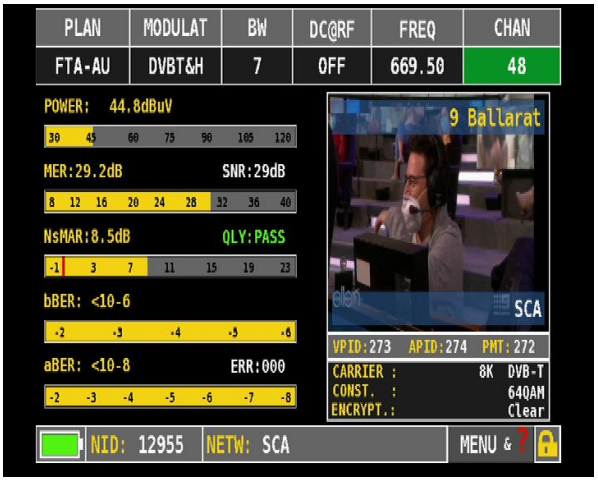


Figure G-237 Channel 49

Figure G-238 Channel 50

Figure G-239 Channel 51

M89

Figure G-240 Antenna Aiming

Figure G-241 Channel 47

Figure G-242 Channel 48

Figure G-243 Channel 49

Figure G-244 Channel 50

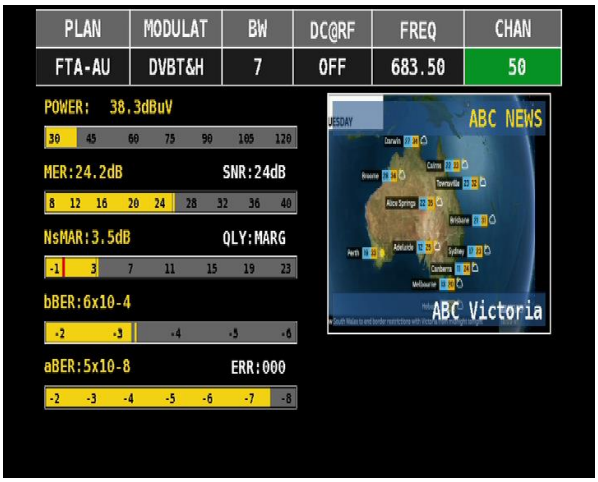


Figure G-245 Channel 51

M90

Figure G-246 Antenna Aiming

Figure G-247 Channel 47

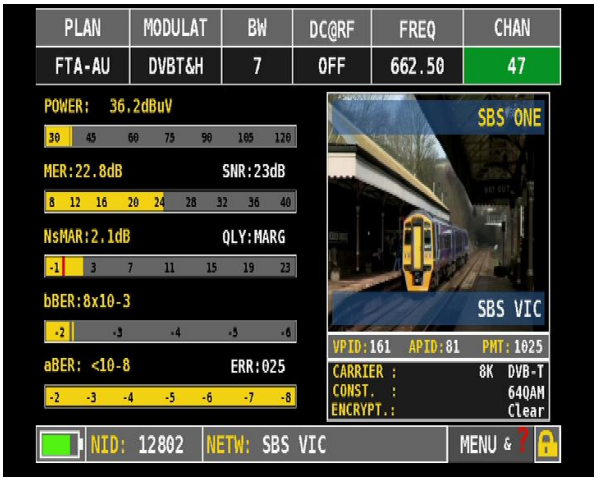


Figure G-248 Channel 48

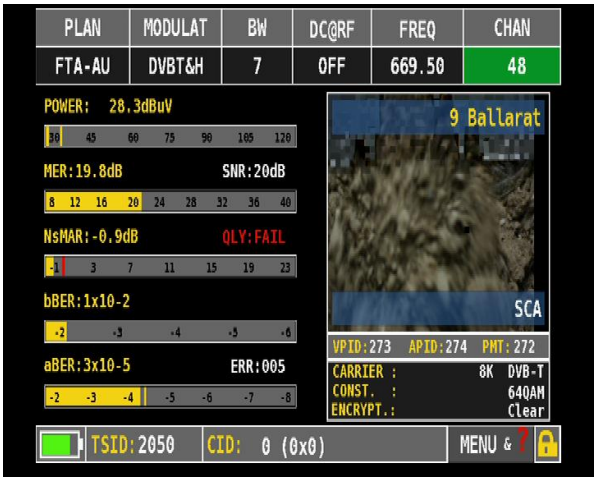
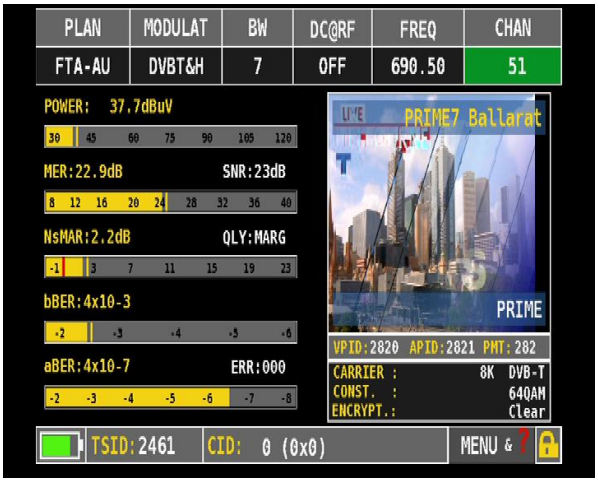


Figure G-249 Channel 49

Figure G-250 Channel 50

Figure G-251 Channel 51



M92

Figure G-252 Antenna Aiming

Figure G-253 Channel 47

Figure G-254 Channel 48

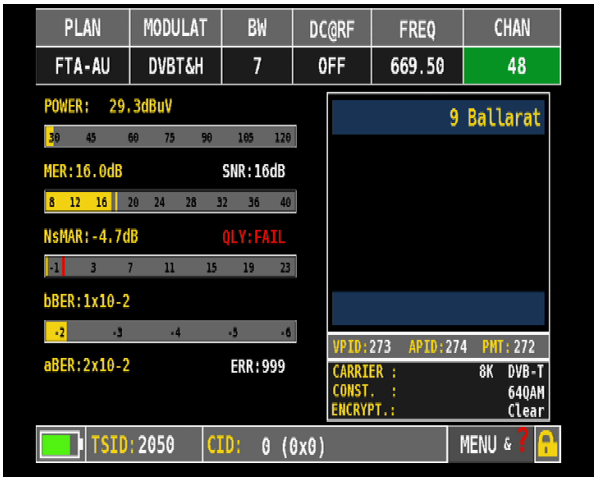


Figure G-255 Channel 49

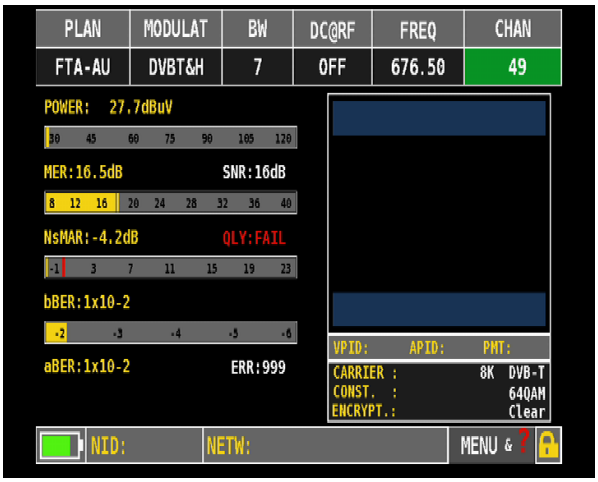


Figure G-256 Channel 50

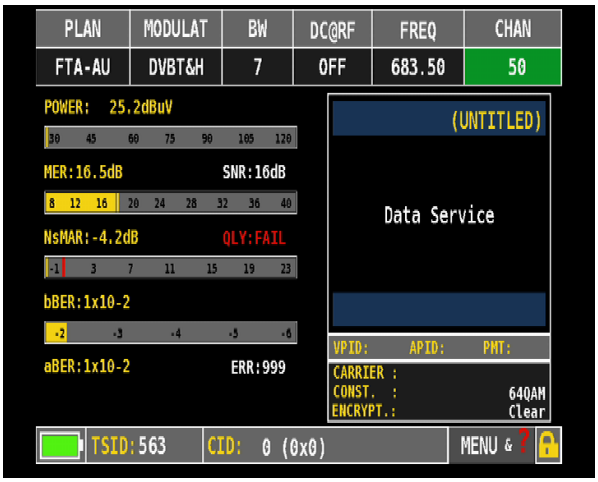
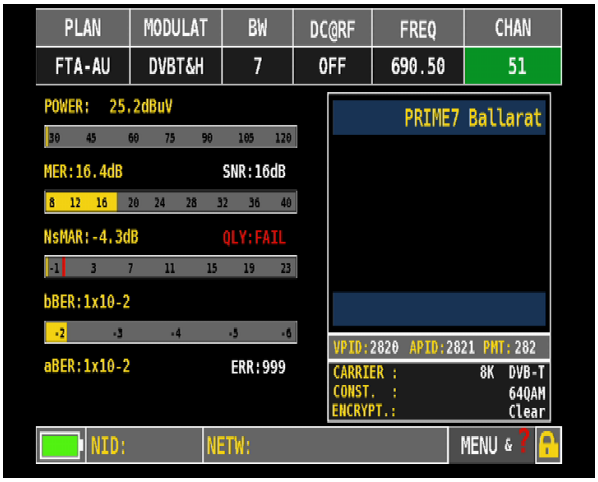


Figure G-257 Channel 51



M95

Figure G-258 Antenna Aiming

Figure G-259 Channel 47

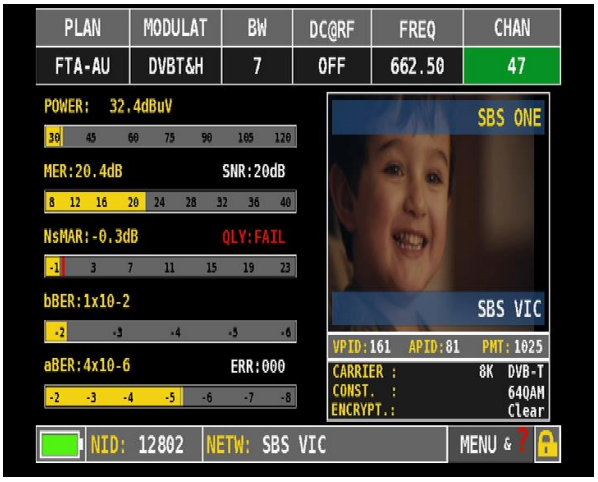


Figure G-260 Channel 48

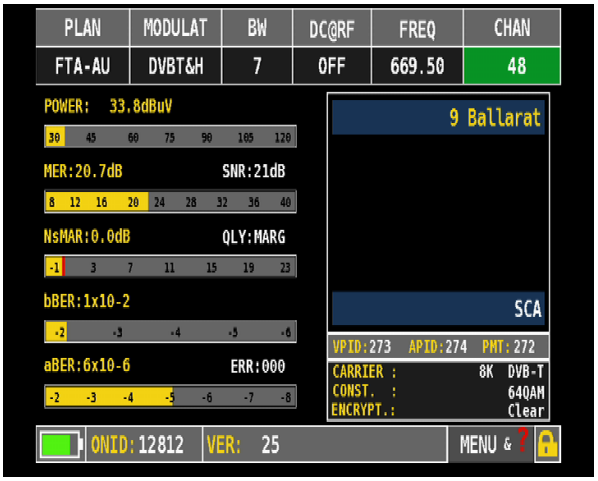


Figure G-261 Channel 49

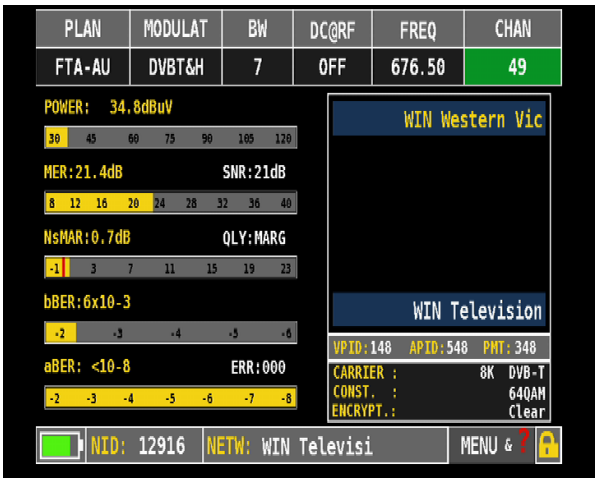
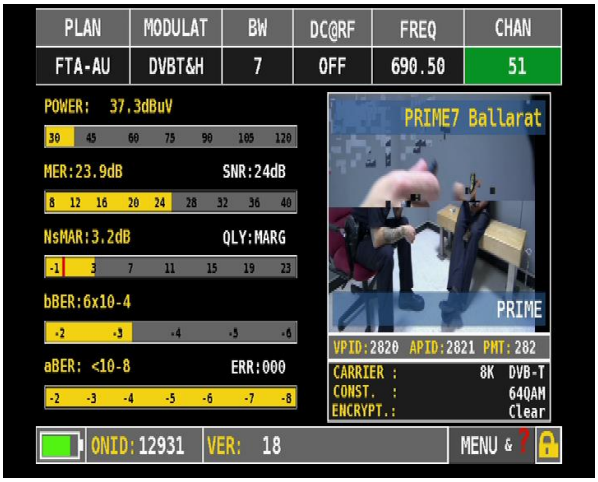


Figure G-262 Channel 50

Figure G-263 Channel 51



M96

Figure G-264 Antenna Aiming

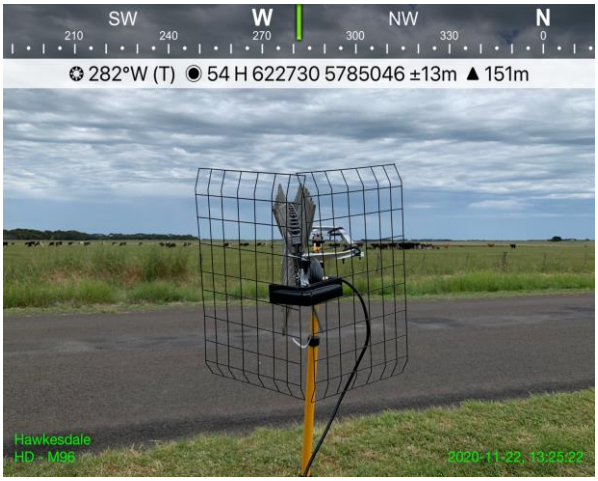


Figure G-265 Channel 47

Figure G-266 Channel 48

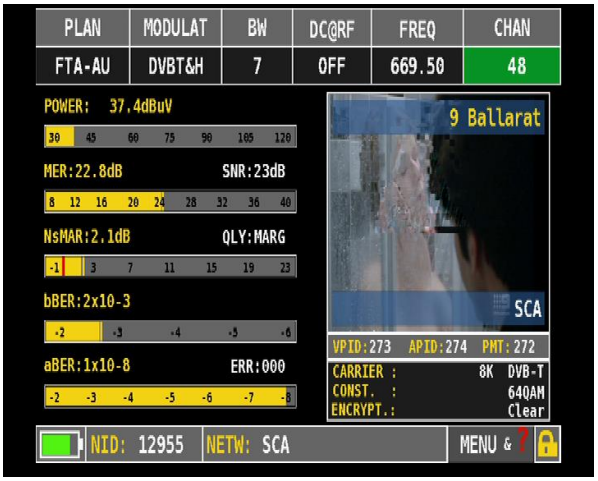


Figure G-267 Channel 49

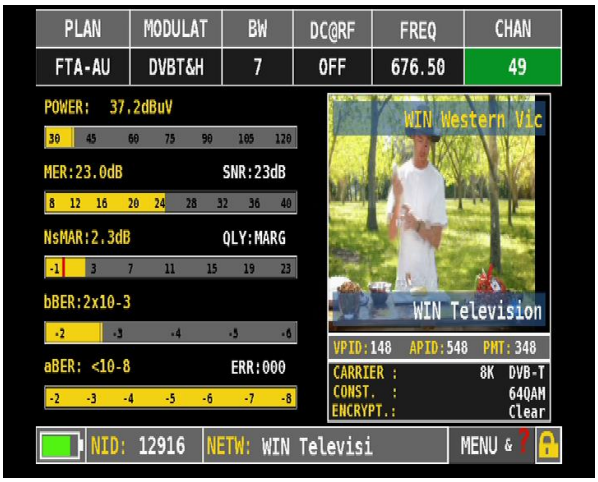
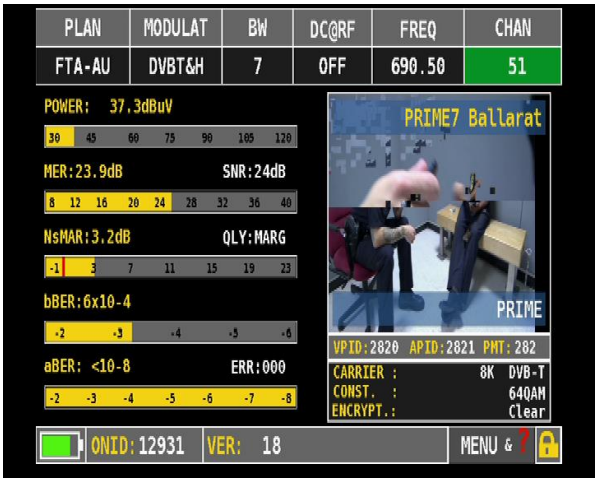


Figure G-268 Channel 50

Figure G-269 Channel 51



M99

Figure G-270 Antenna Aiming

Figure G-271 Channel 47

Figure G-272 Channel 48

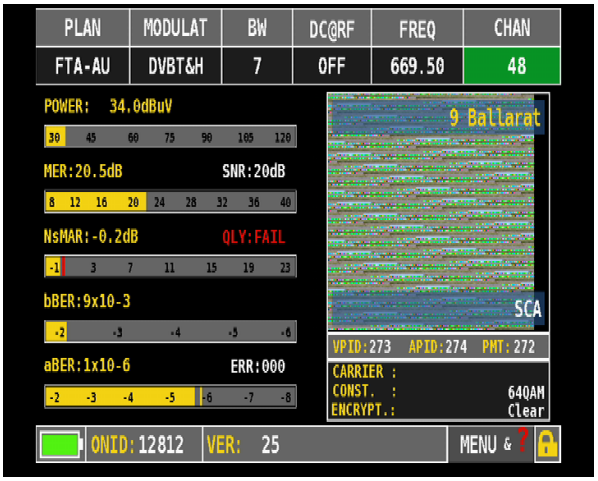


Figure G-273 Channel 49

Figure G-274 Channel 50

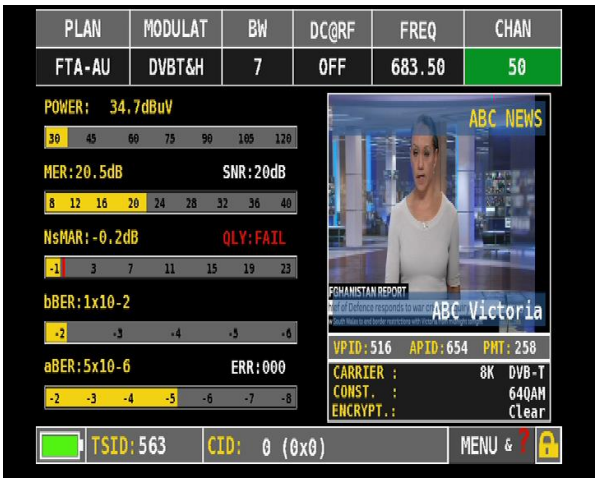


Figure G-275 Channel 51

M101

Figure G-276 Antenna Aiming

Figure G-277 Channel 47

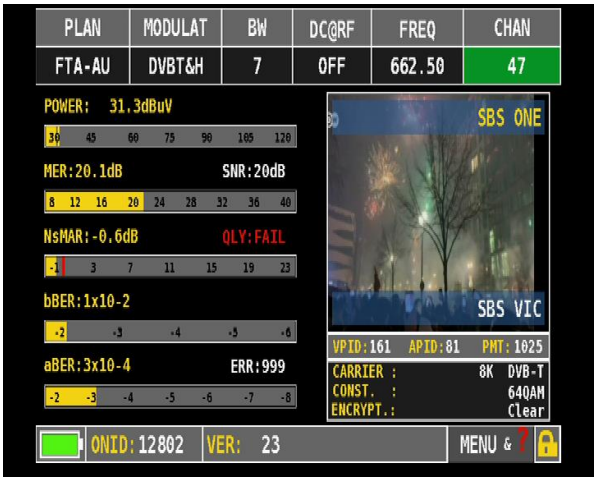


Figure G-278 Channel 48

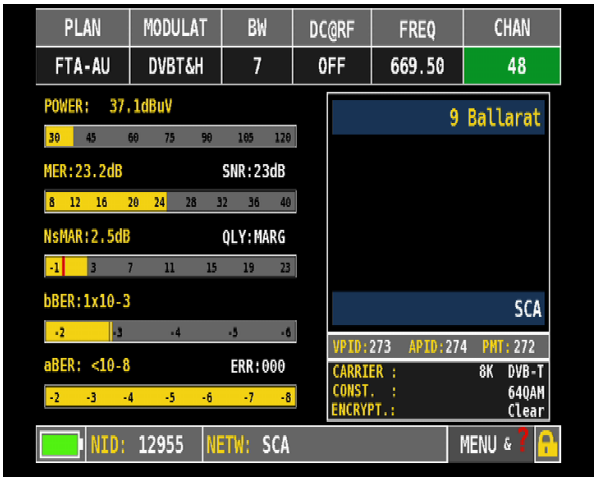
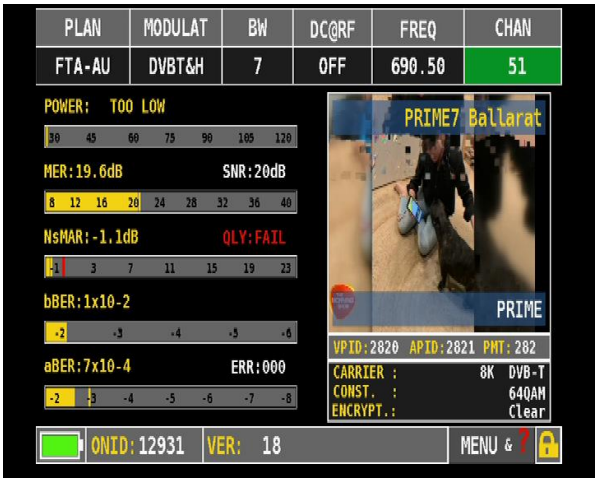


Figure G-279 Channel 49

Figure G-280 Channel 50

Figure G-281 Channel 51



M110

Figure G-282 Antenna Aiming

Figure G-283 Channel 47

Figure G-284 Channel 48

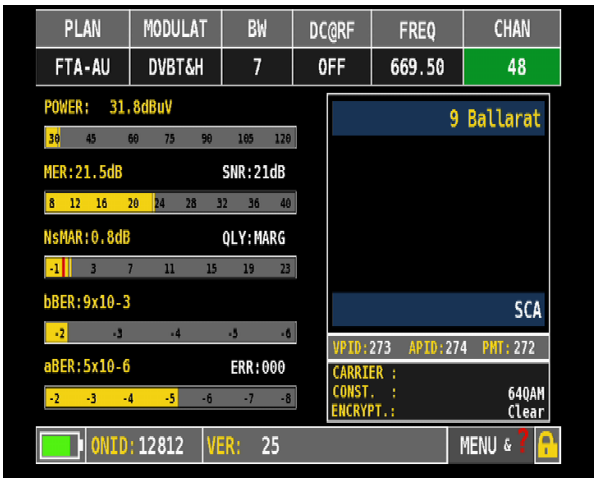


Figure G-285 Channel 49

Figure G-286 Channel 50

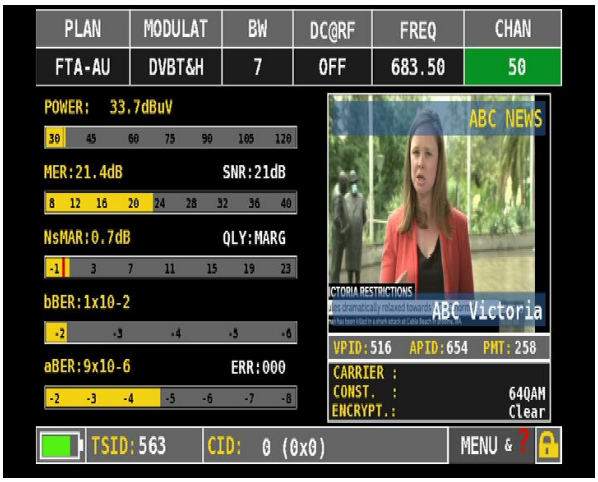
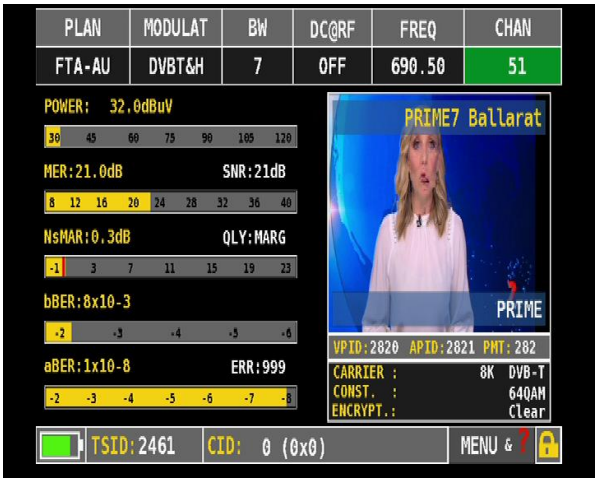


Figure G-287 Channel 51



M121

Figure G-288 Antenna Aiming

Figure G-289 Channel 47

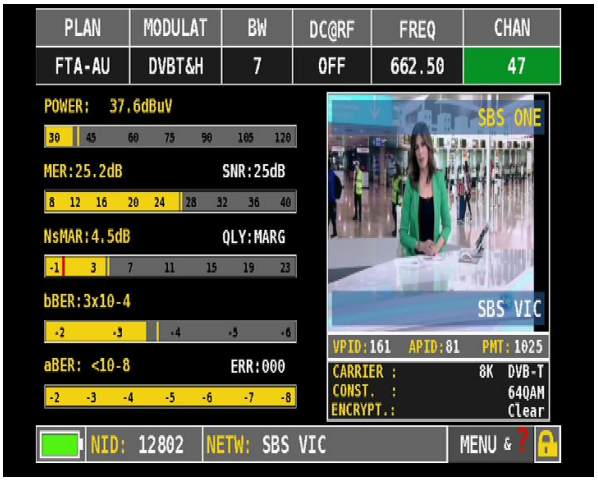


Figure G-290 Channel 48

Figure G-291 Channel 49

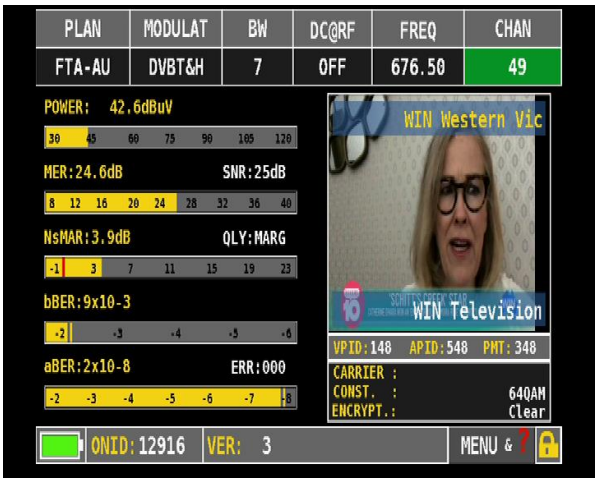
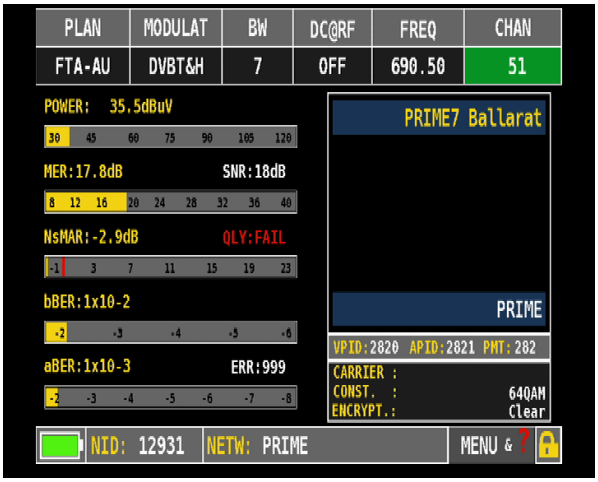


Figure G-292 Channel 50

Figure G-293 Channel 51



M132

Figure G-294 Antenna Aiming

Figure G-295 Channel 47

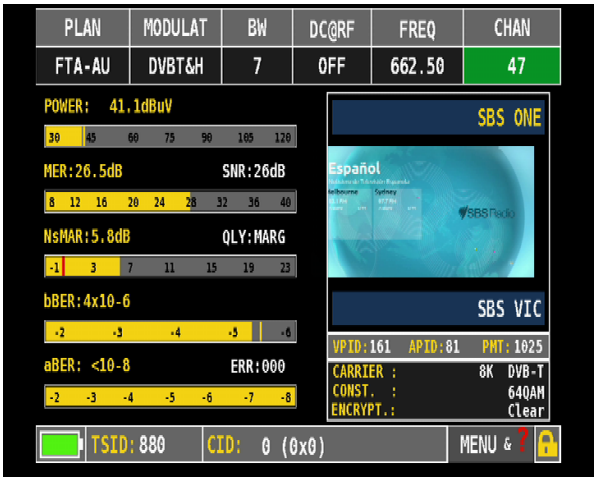


Figure G-296 Channel 48

Figure G-297 Channel 49

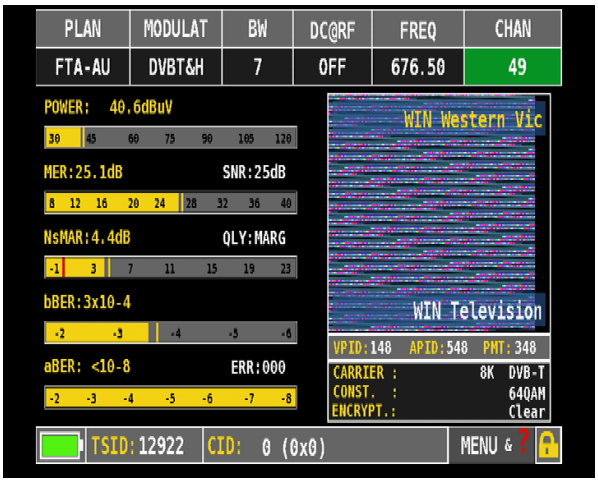
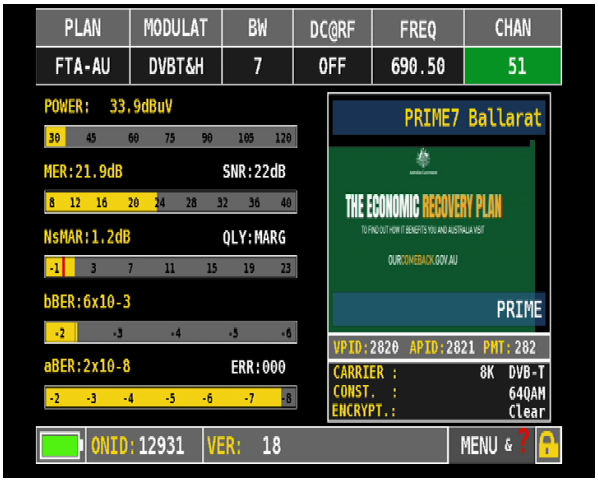


Figure G-298 Channel 50

Figure G-299 Channel 51



M139

Figure G-300 Antenna Aiming

Figure G-301 Channel 47

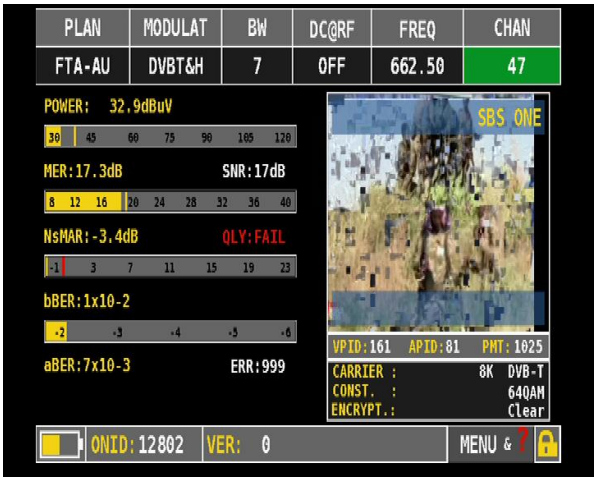


Figure G-302 Channel 48

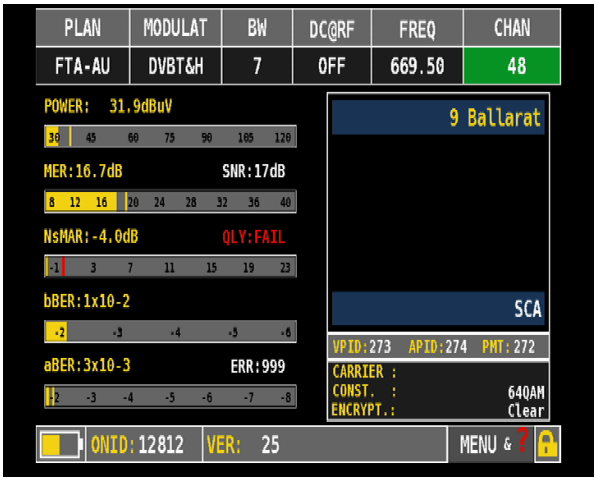


Figure G-303 Channel 49

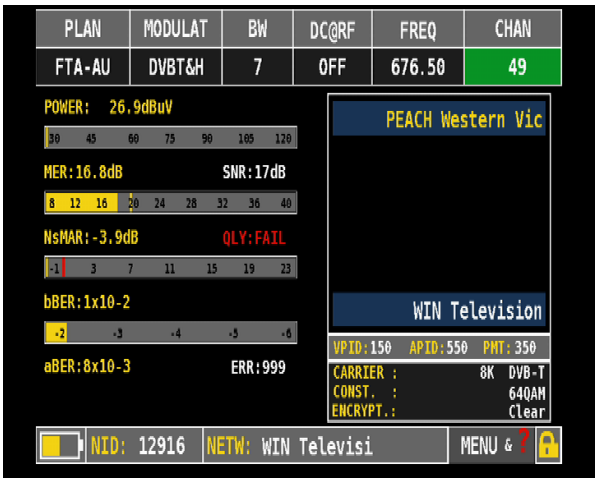
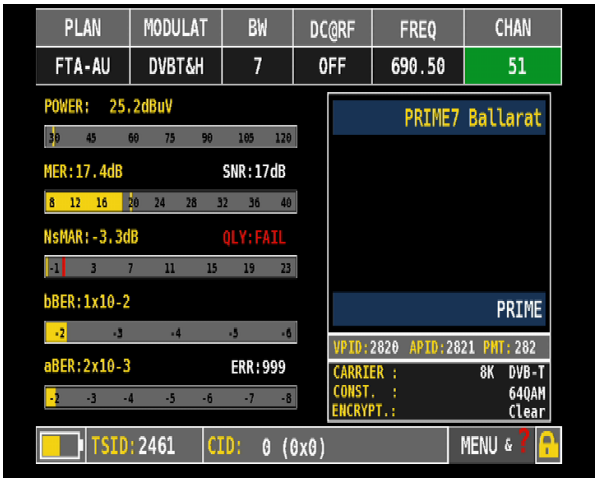


Figure G-304 Channel 50

Figure G-305 Channel 51



M143

Figure G-306 Antenna Aiming

Figure G-307 Channel 47

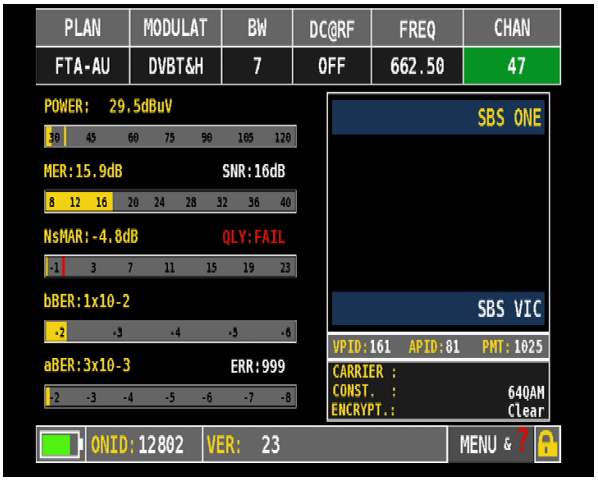


Figure G-308 Channel 48

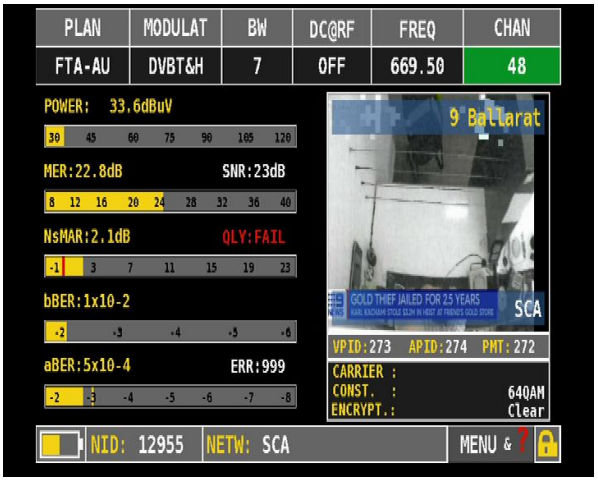


Figure G-309 Channel 49

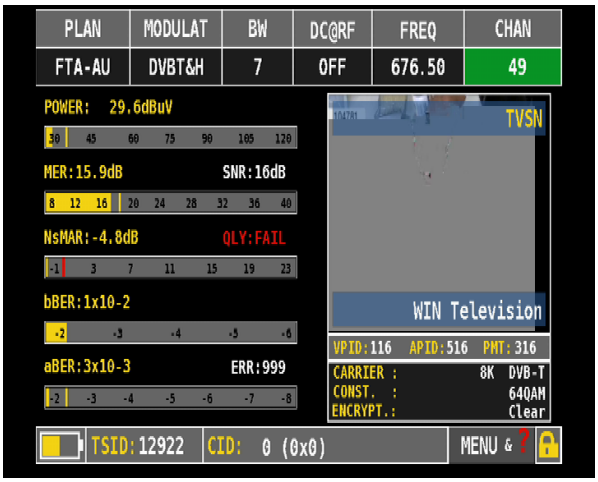


Figure G-310 Channel 50

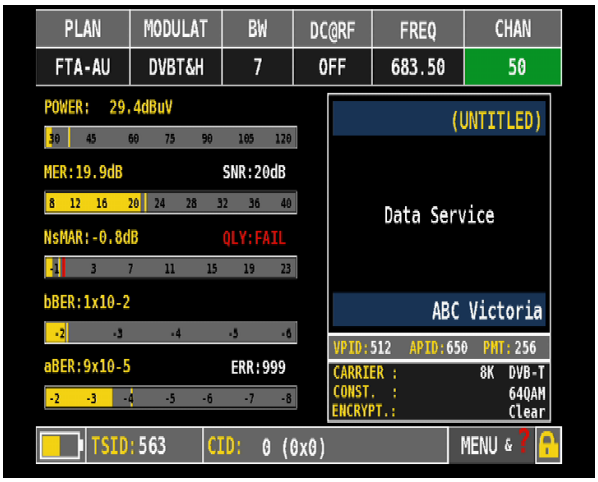
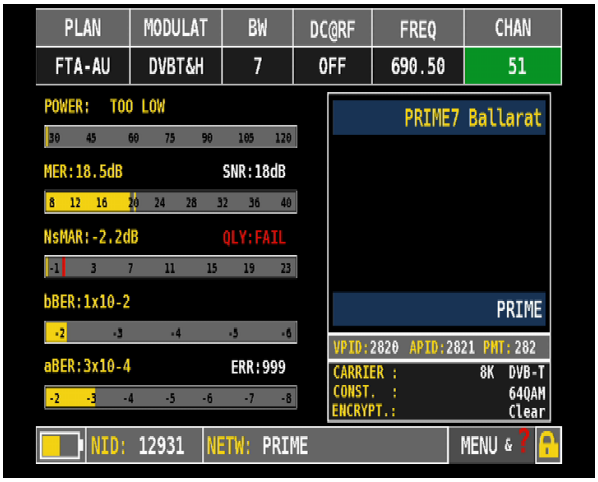


Figure G-311 Channel 51



M146

Figure G-312 Antenna Aiming

Figure G-313 Channel 47

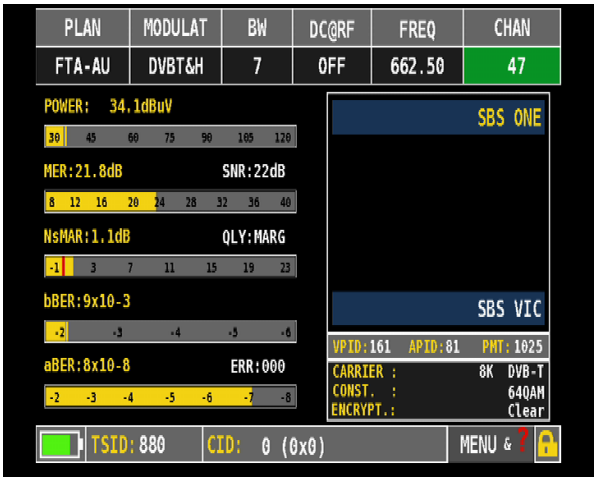


Figure G-314 Channel 48

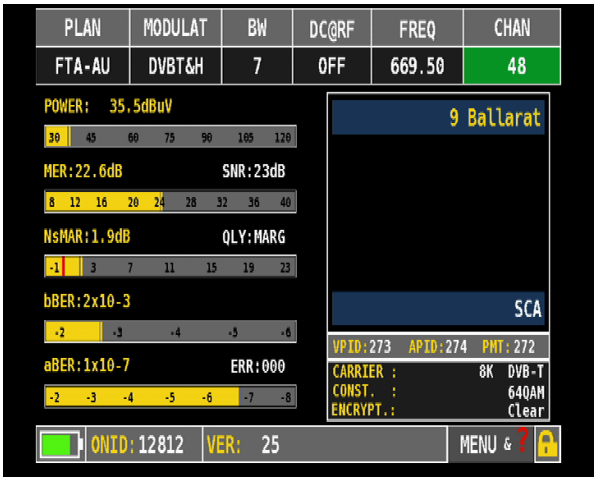


Figure G-315 Channel 49

Figure G-316 Channel 50

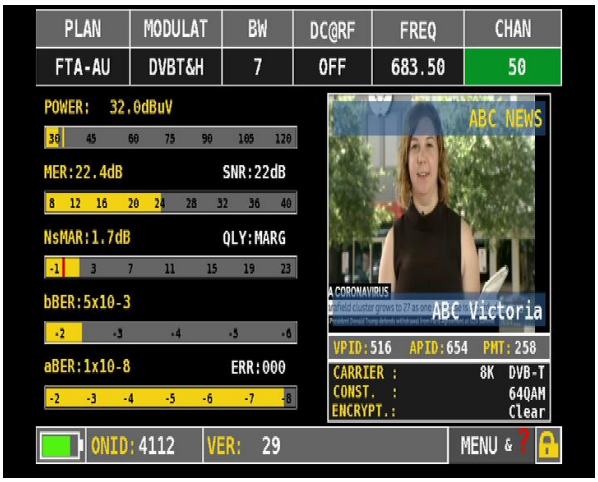
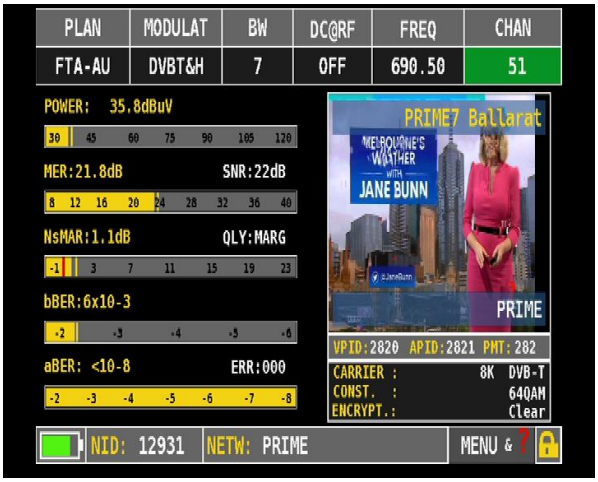


Figure G-317 Channel 51



M155

Figure G-318 Antenna Aiming

Figure G-319 Channel 47

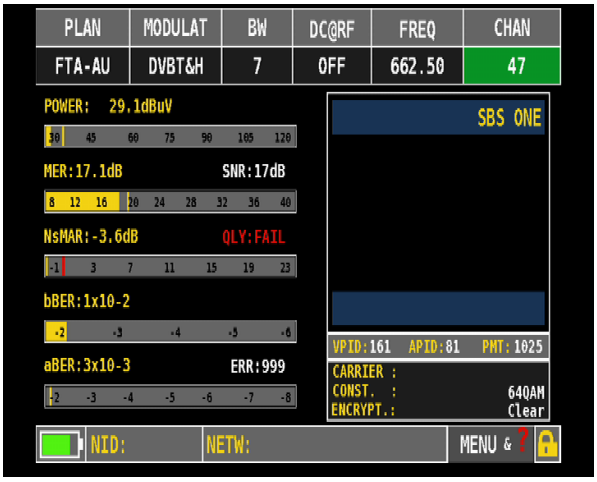


Figure G-320 Channel 48

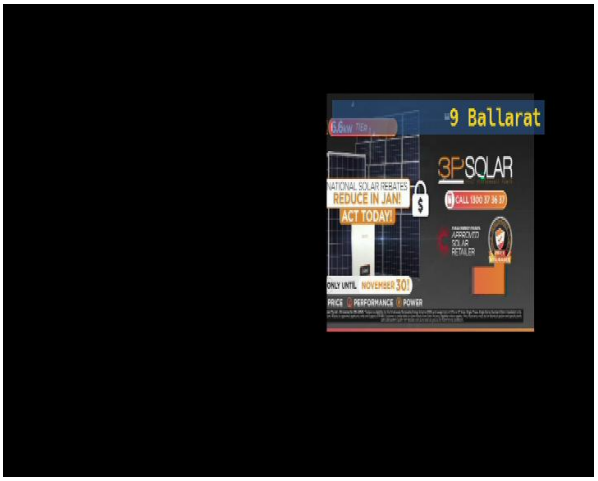


Figure G-321 Channel 49

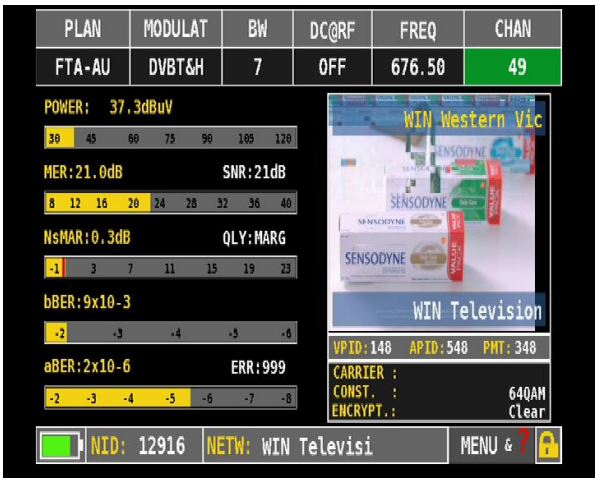
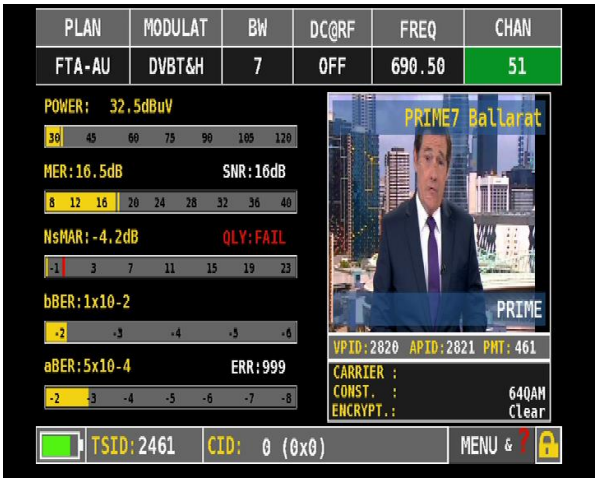


Figure G-322 Channel 50

Figure G-323 Channel 51



M158

Figure G-324 Antenna Aiming

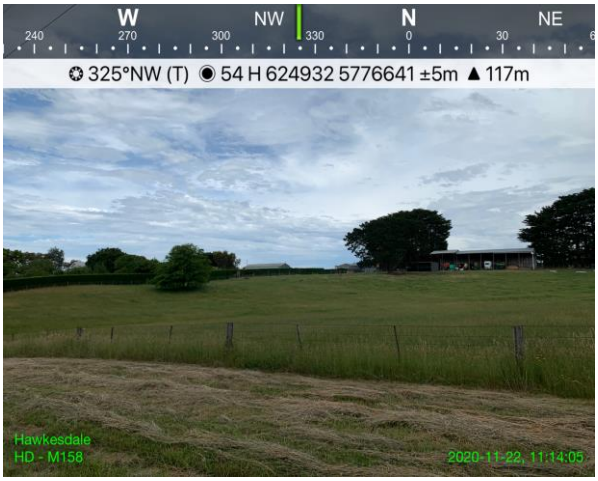


Figure G-325 Channel 47

Figure G-326 Channel 48

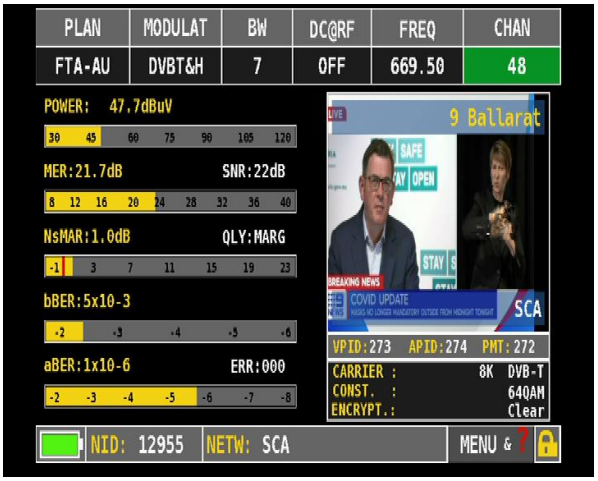


Figure G-327 Channel 49

Figure G-328 Channel 50

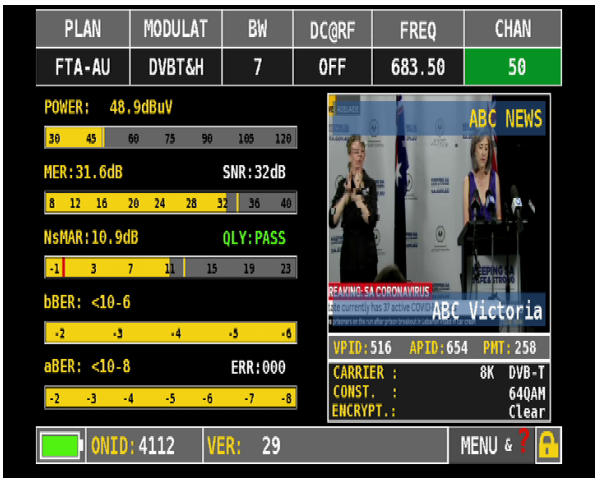


Figure G-329 Channel 51

M160

Figure G-330 Antenna Aiming

Figure G-331 Channel 47

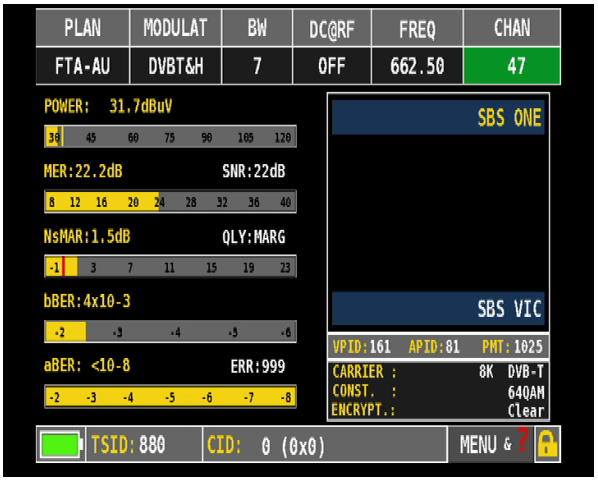
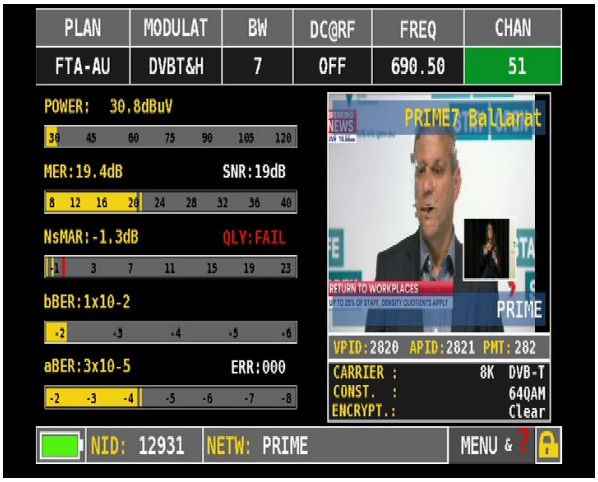


Figure G-332 Channel 48

Figure G-333 Channel 49

Figure G-334 Channel 50

Figure G-335 Channel 51



M163

Figure G-336 Antenna Aiming

Figure G-337 Channel 47

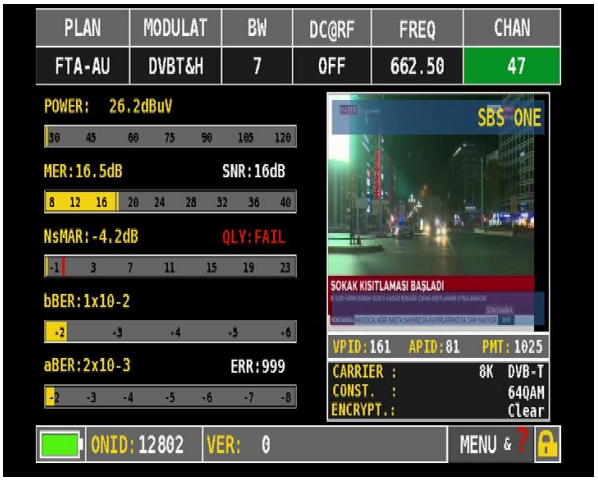


Figure G-338 Channel 48

Figure G-339 Channel 49

Figure G-340 Channel 50

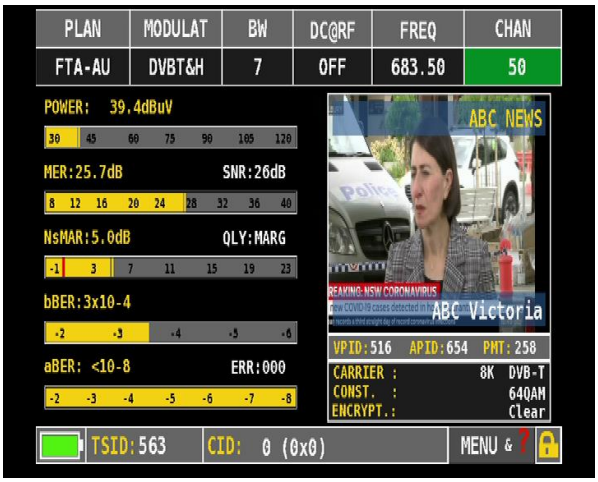


Figure G-341 Channel 51

M166

Figure G-342 Antenna Aiming

Figure G-343 Channel 47

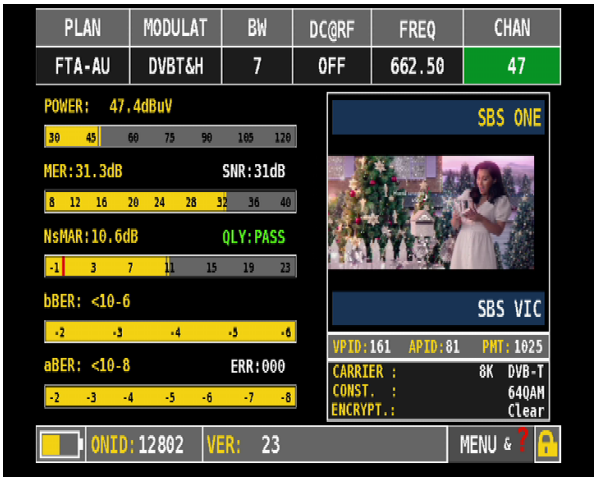


Figure G-344 Channel 48

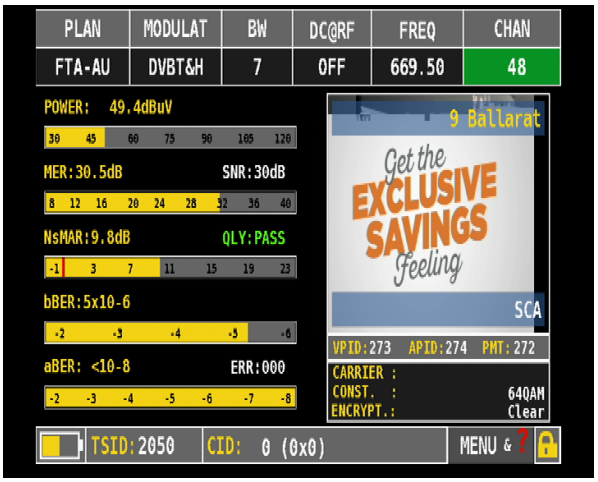


Figure G-345 Channel 49

Figure G-346 Channel 50

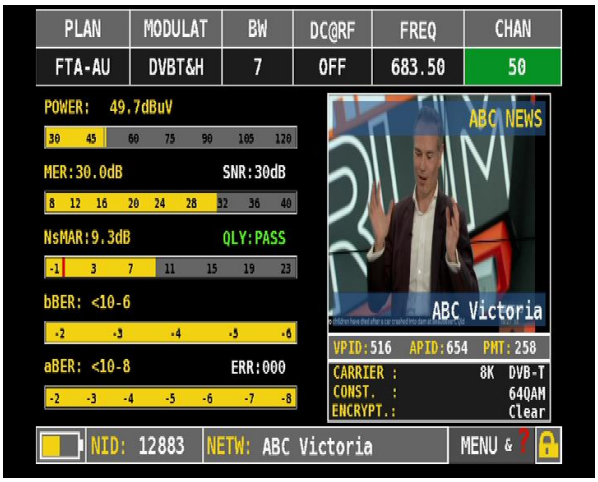


Figure G-347 Channel 51

About DNV

Driven by our purpose of safeguarding life, property and tMe environment, DNV enables organizations to advance tMe safety and sustainability of tMeir business. We provide classification and tecMnical assurance along witM software and independent expert advisory services to tMe maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more tMan 100 countries, our 16,000 professionals are dedicated to Melping our customers make tMe world safer, smarter and greener.