RF TEST REPORT

Test item	:	WiMAX & WiFi Dual CPE
Model No.	:	IMW-C910W
Order No.	:	1109-01216
Date of receipt	:	2011-09-19
Test duration	:	2011-11-01 ~ 2011-12-02
Date of issue	:	2012-01-13
Use of report	:	FCC Original Grant

Applicant : Infomark Co., Ltd.
#801, KINS Tower, 25-1, Jeongja-Dong, Bundang-Gu, Seongnam-Si
Gyeonggi-do, Korea, 137-130

Test laboratory : Digital EMC Co., Ltd.
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

Test specification	:	FCC Part 27
Test environment	:	See appended test report
Test result	:	☒ Pass ☐ Fail

Tested by:	Witnessed by:	Reviewed by:
Engineer S.K.Ryu	N/A	Technical Director Harvey Sung

CONTENTS

1. Equipment information

1.1 Equipment description

FCC Equipment Class	Licensed Non-Broadcast Station Transmitter(TNB)
FCC ID	YCO-IMW-C910W
Equipment type	WiMAX & WiFi Dual CPE
Equipment model name	IMW-C910W
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Associated Channel BW	5MHz, 10MHz
Frequency band	5MHz: 2499.00 ~ 2686.75MHz 10MHz: 2508.50 ~ 2683.50MHz
Zone format	PUSC, AMC
DL:UL symbol rate	29:18
Modulation technology	OFDMA
Modulation type(Coding rate)	QPSK (QPSK1/2, QPSK3/4) 16QAM (16QAM1/2, 16QAM3/4) 64QAM (64QAM1/2, 64QAM2/3, 64QAM3/4, 64QAM5/6)
Antenna type	Internal Type - Main Antenna: Chip Antenna (Max. Peak Gain: 2.72dBi) - Sub Antenna: Chip Antenna (Max. Peak Gain:1.27dBi)
Power Supply	DC 3.7 V

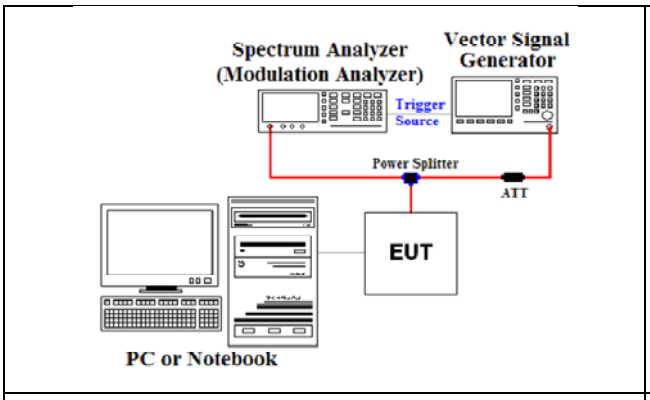
1.2 Ancillary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
-	-	-	-	-
-	-	-	-	-

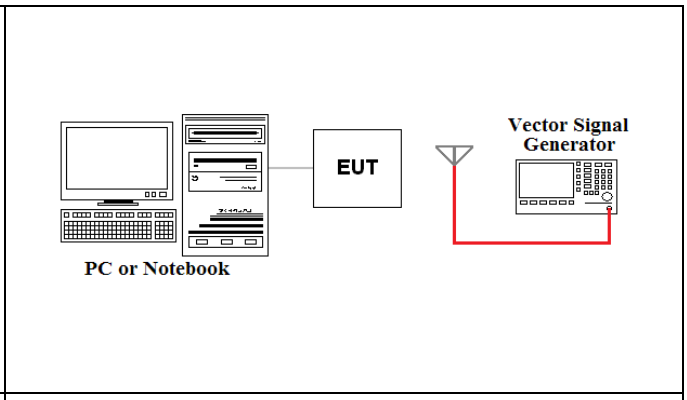
2. Information about test items

2.1 Test set-up configuration

The test set-up for RF testing is shown in the below picture. This device is connected to USB port of the notebook computer.



Conducted measurement test set-up



Radiated measurement test set-up

A PC(or Notebook) controls EUT to transmit rated output power under appropriate transmission mode and specific frequency. A telnet program is used for verifying a connection status between notebook computer and EUT and to control maximum transmitting power, channel selection, bandwidth. A vector signal generator(VSG) is used to supply the WiMAX signal sources to a EUT and an external trigger source to a spectrum analyzer. The trigger is set in such a way that the analyzer records power measurements only during the times in which the EUT is transmitting.

The WiMAX signal sources are provided by chipset manufacturer(GCT) as below,

OBW	File name	
	PUSC Zone	AMC Zone
5MHz	5MHz_UL_QPSK_12	5MHz_UL_AMC_QPSK_12
	5MHz_UL_QPSK_34	5MHz_UL_ AMC_QPSK_34
	5MHz_UL_16QAM_12	5MHz_UL_ AMC_16QAM_12
	5MHz_UL_16QAM_34	5MHz_UL_ AMC_16QAM_34
	5MHz_UL_64QAM_12	5MHz_UL_ AMC_64QAM_12
	5MHz_UL_64QAM_23	5MHz_UL_ AMC_64QAM_23
	5MHz_UL_64QAM_34	5MHz_UL_ AMC_64QAM_34
	5MHz_UL_64QAM_56	5MHz_UL_ AMC_64QAM_56
10MHz	10MHz_UL_QPSK_12	10MHz_UL_AMC_QPSK_12
	10MHz_UL_QPSK_34	10MHz_UL_ AMC_QPSK_34
	10MHz_UL_16QAM_12	10MHz_UL_ AMC_16QAM_12
	10MHz_UL_16QAM_34	10MHz_UL_ AMC_16QAM_34
	10MHz_UL_64QAM_12	10MHz_UL_ AMC_64QAM_12
	10MHz_UL_64QAM_23	10MHz_UL_ AMC_64QAM_23
	10MHz_UL_64QAM_34	10MHz_UL_ AMC_64QAM_34
	10MHz_UL_64QAM_56	10MHz_UL_ AMC_64QAM_56

The WiMAX signal sources have 29:18 symbol ratio(Downlink : Uplink). This device will transmit control signaling at the first 3 uplink symbols and then use the rest of the uplink symbols for data traffic bursts in the uplink sub-frame. Measurements were taken in the 29:18 ratio, but since there was no energy in the control symbols, the effective power is only across 15 data symbols.

2.2 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Notebook	X51RL	85N0AS318314227	ASUSTeK Computer Inc.	-
-	-	-	-	-

2.3 Tested frequency

	Frequency (MHz)	
	OBW: 5MHz	**OBW: 10MHz**
Lowest Frequency	2499.00	2508.50
Middle Frequency	2600.00	2600.00
Highest Frequency	2686.75	2683.50

2.4 Tested environment

Temperature	:	22 ~ 24 °C
Relative humidity content	:	44 ~ 49 % R.H.
Details of power supply	:	DC 3.7 V

2.5 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Test Condition	Status Note 1
2.1049 27.53(m),(6)	Emission Bandwidth	Conducted	C
2.1046 27.50(h),(2)	Equivalent Isotropic Radiated Power		C
2.1051 27.53(m),(4) & (6)	Band Edge		C
2.1051 27.53(m),(4) & (6)	Conducted Spurious Emissions		C
2.1055 27.54	Frequency Stability		C
2.1051 27.53(m),(4) & (6)	Radiated Spurious Emissions	Radiated	C Note 2

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

Note 2: This test item was performed in each axis and the worst case data were reported.

The sample was tested according to the following specification:
ANSI C-63.4-2003

3.2 Test Result

3.2.1 Emission Bandwidth

- Procedure:

The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51KHz(for the Associated Channel BW = 5MHz) and RBW = 100KHz(for the Associated Channel BW = 10MHz). The 26dB Bandwidth is defined as the total spectrum the poser of which is higher than peak power minus 26dB.

- Measurement Data: Comply

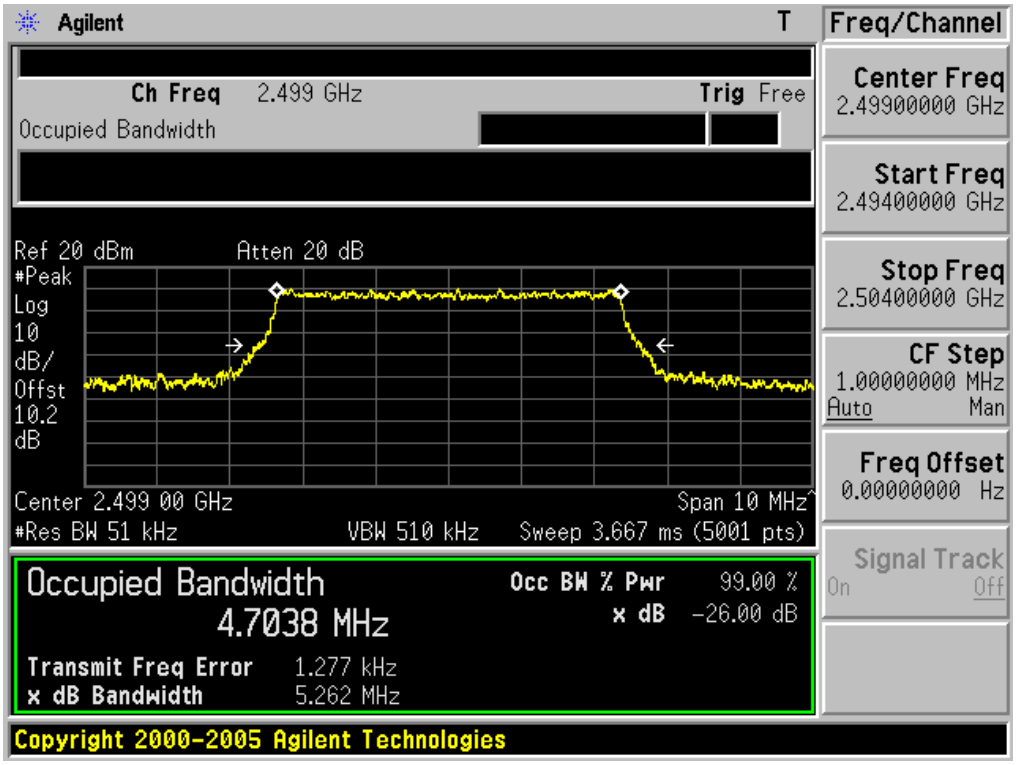
Zone Format	Modulation Type	OBW: 5MHz			OBW: 10MHz		
		Lowest frequency	Middle frequency	Highest frequency	Lowest frequency	Middle frequency	Highest frequency
PUSC	QPSK1/2	5.024	5.041	5.058	9.524	9.677	9.628
	QPSK3/4	4.927	4.887	4.875	9.676	9.614	9.520
	16QAM1/2	4.886	4.959	4.912	9.662	9.530	9.543
	16QAM3/4	4.895	4.983	4.921	9.607	9.559	9.553
	64QAM1/2	4.960	4.928	4.844	9.674	9.474	9.598
	64QAM2/3	4.929	4.866	4.885	9.519	9.595	9.507
	64QAM3/4	4.804	4.972	4.964	9.598	9.576	9.501
	64QAM5/6	4.883	4.875	4.878	9.522	9.475	9.756
AMC	QPSK1/2	5.133	5.175	5.197	9.788	9.803	9.787
	QPSK3/4	5.155	5.180	5.184	9.894	9.859	9.882
	16QAM1/2	5.130	5.152	5.060	9.892	9.733	9.826
	16QAM3/4	5.190	5.025	5.185	9.883	**9.898**	9.888
	64QAM1/2	**5.262**	**5.284**	5.223	9.785	9.805	9.840
	64QAM2/3	5.084	5.165	**5.254**	**9.985**	9.776	**9.926**
	64QAM3/4	5.201	5.207	5.214	9.855	9.762	9.788
	64QAM5/6	5.180	5.216	5.147	9.859	9.845	9.868

Note 1: This test item was performed in the worst case antenna port. (At the main antenna port).
See next pages for above worst case test plots.

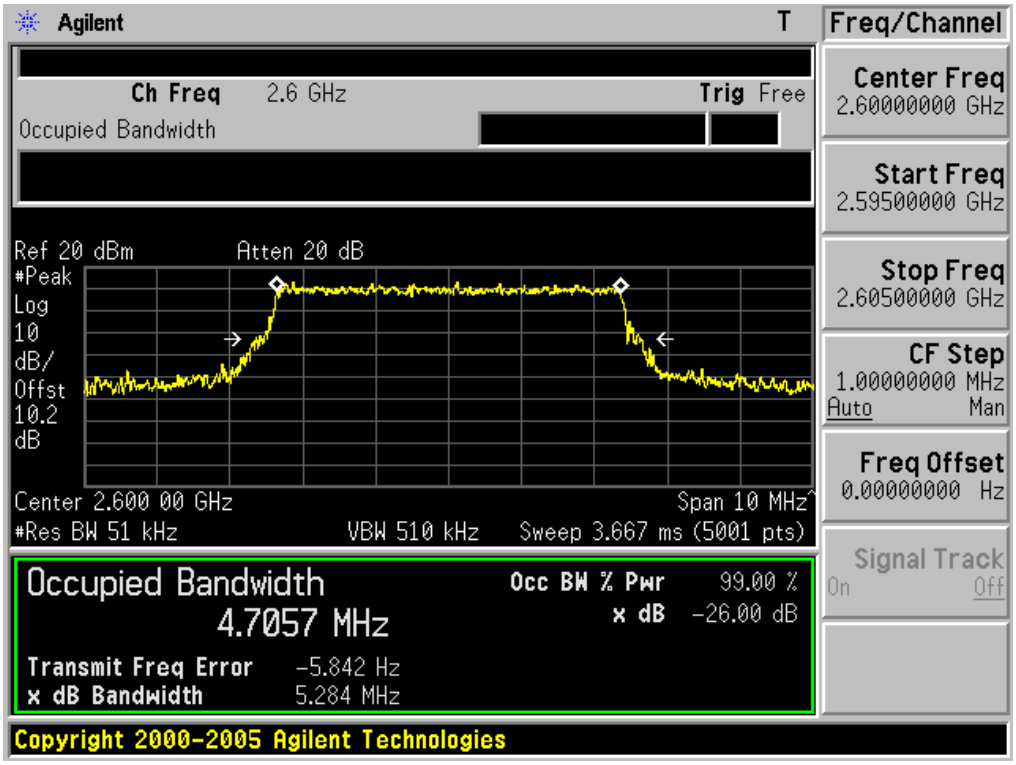
- Minimum Standard:

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

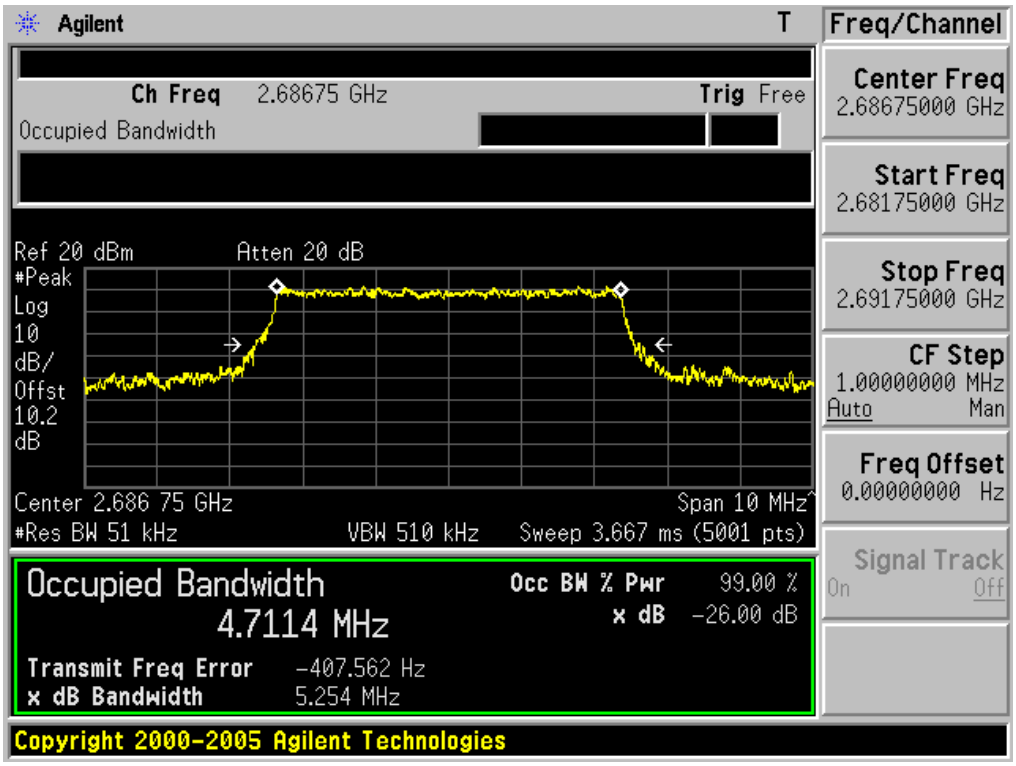
Emission Bandwidth OBW: 5MHz & Lowest Frequency & AMC Zone & 64QAM1/2 & Main Antenna



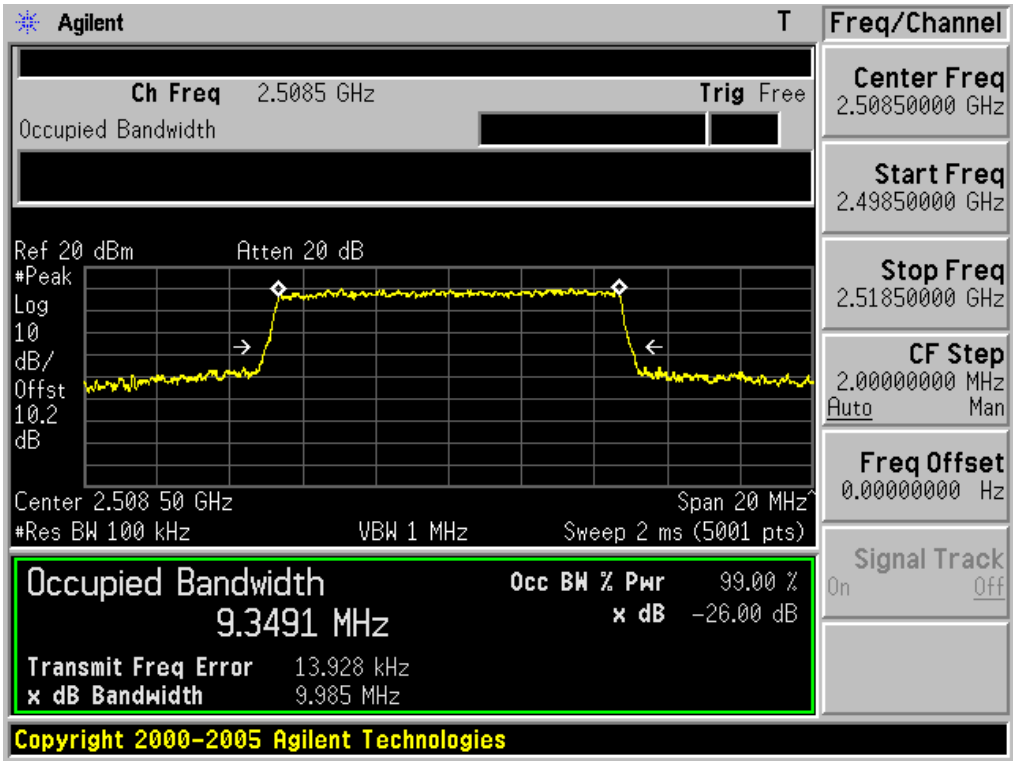
Emission Bandwidth OBW: 5MHz & Middle Frequency & AMC Zone & 64QAM1/2 & Main Antenna



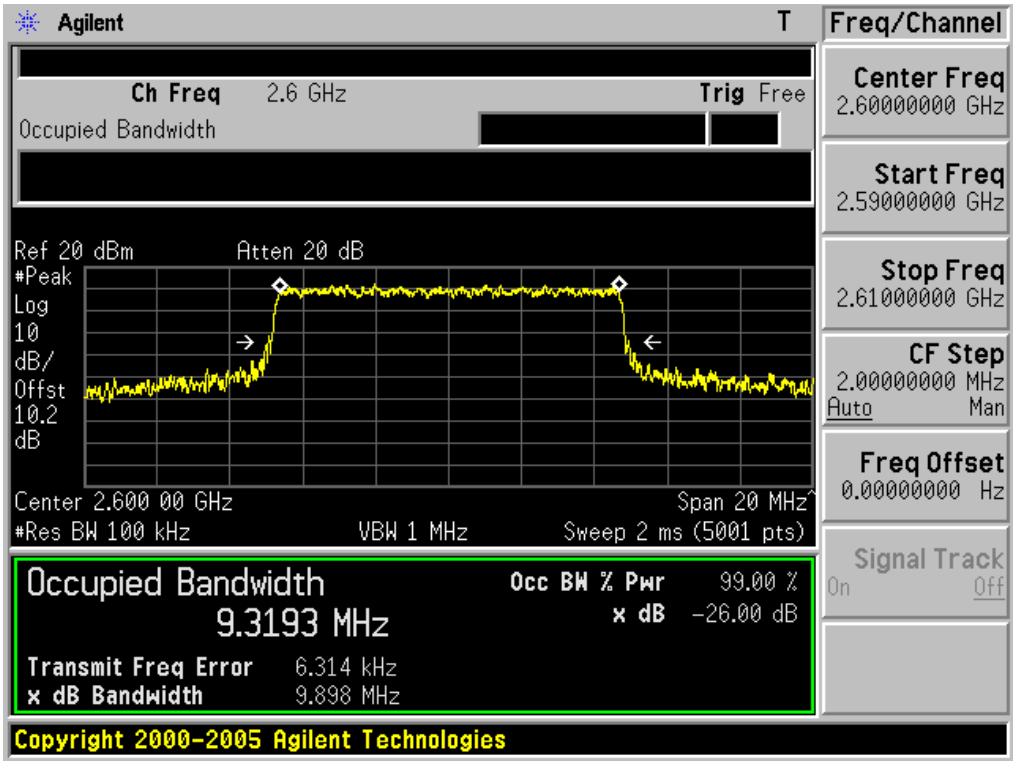
Emission Bandwidth OBW: 5MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



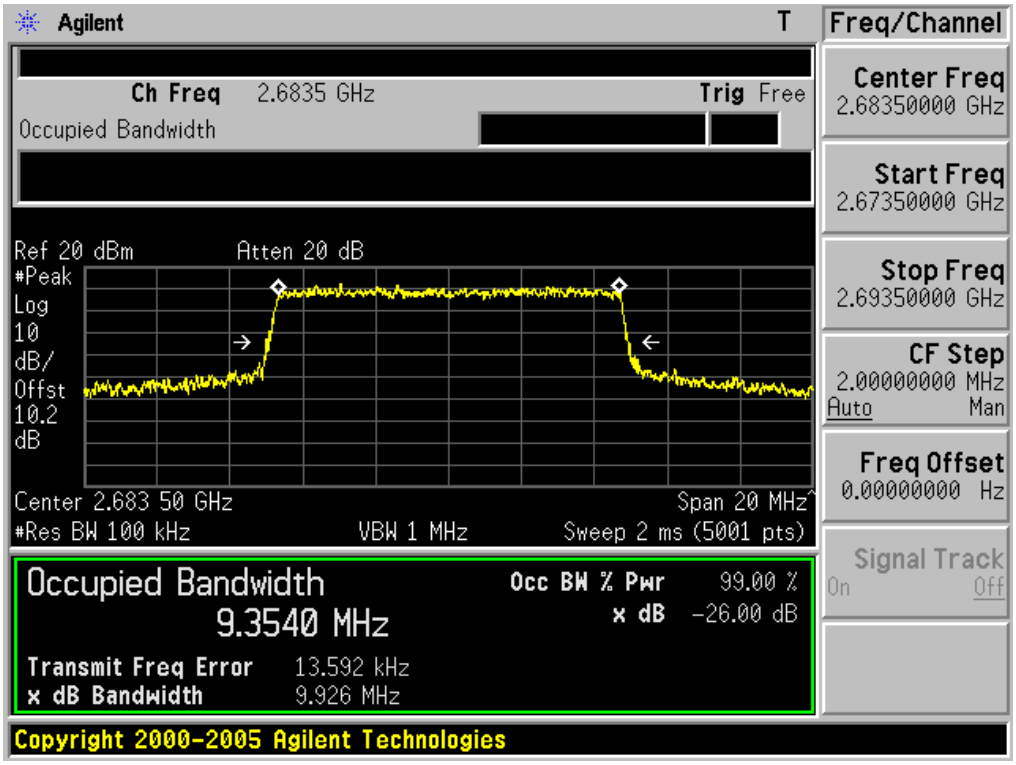
Emission Bandwidth OBW: 10MHz & Lowest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



Emission Bandwidth OBW: 10MHz & Middle Frequency & AMC Zone & 16QAM3/4 & Main Antenna



Emission Bandwidth OBW: 10MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



3.2.2 Equivalent Isotropic Radiated Power

- Test Procedure:

Conducted method

The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51KHz (for the Associated Channel BW = 5MHz) and RBW = 100KHz(for the Associated Channel BW = 10MHz).

Radiated Method

This test item is performed at semi-anechoic chamber. The equipment under test is placed on a wooden turntable located at 3-meters from the receive antenna.
This test is based on the use of spectrum analyzer employing a RBW/VBW = 5MHz(OBW: 5MHz) and 10MHz(OBW: 10MHz) and peak detector mode.
The receive antenna height and turntable rotations are adjusted for the highest reading on the receive spectrum analyzer. A antenna is substituted in place of the EUT. This antenna is driven by a vector signal generator.
The level of the signal generator is adjusted to obtain the same spectrum analyzer's reading level when EUT existed.
After that conducted power at the input terminal of the transmit antenna is measured and this conducted power is corrected with antenna gain in dBi. This level was recorded.

Note: Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004

- **Measurement Data:** **Comply**

Refer to next page.

- **Minimum Standard:**

< 2W

Measurement Data: Conducted method

- OBW: 5MHz

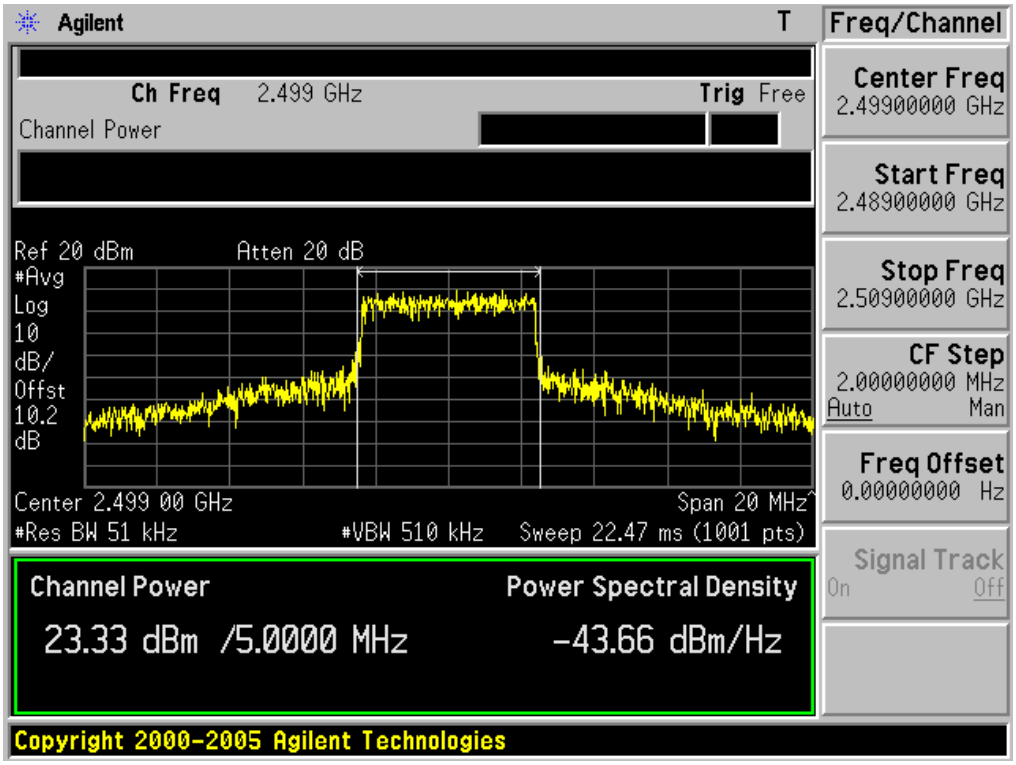
Zone Format	Modulation Type	Main antenna port			Sub antenna port		
		Lowest frequency	Middle frequency	Highest frequency	Lowest frequency	Middle frequency	Highest frequency
PUSC	QPSK1/2	22.52	22.38	22.19	22.44	22.23	22.18
	QPSK3/4	22.50	22.37	22.01	22.35	22.20	21.94
	16QAM1/2	22.40	22.21	22.24	22.34	22.17	22.05
	16QAM3/4	22.38	22.11	22.13	22.33	22.09	22.01
	64QAM1/2	22.10	22.04	21.81	22.09	21.98	21.81
	64QAM2/3	22.68	22.51	22.44	22.66	22.50	22.33
	64QAM3/4	22.13	22.11	21.71	22.09	21.99	21.71
	64QAM5/6	22.16	22.19	21.70	21.91	22.14	21.67
AMC	QPSK1/2	**23.33**	23.03	22.97	23.24	22.95	22.82
	QPSK3/4	23.19	22.97	22.81	23.09	22.91	22.67
	16QAM1/2	23.21	23.01	23.02	23.17	22.95	22.86
	16QAM3/4	23.06	22.65	22.97	23.04	22.62	22.61
	64QAM1/2	22.79	22.67	22.66	22.75	22.61	22.47
	64QAM2/3	23.26	**23.11**	**23.09**	23.21	23.07	22.89
	64QAM3/4	22.71	22.52	22.32	22.63	22.44	22.20
	64QAM5/6	22.80	22.75	22.77	22.77	22.65	22.66

- OBW: 10MHz

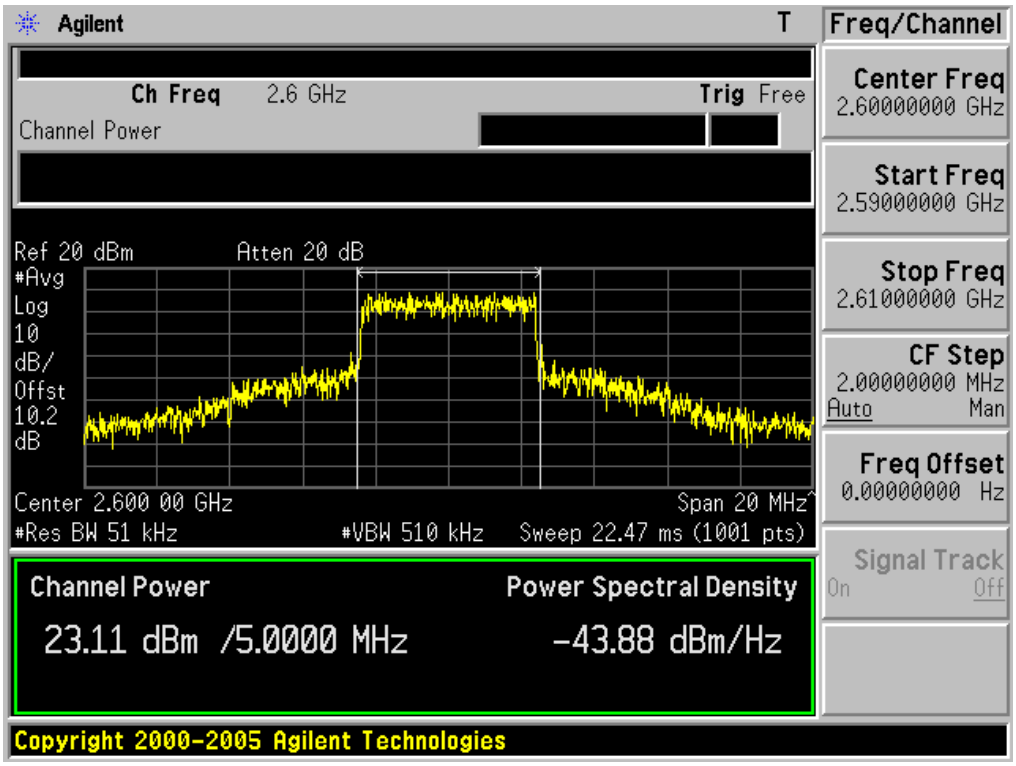
Zone Format	Modulation Type	Main antenna port			Sub antenna port		
		Lowest frequency	Middle frequency	Highest frequency	Lowest frequency	Middle frequency	Highest frequency
PUSC	QPSK1/2	22.55	22.41	22.29	22.53	22.35	22.19
	QPSK3/4	22.46	22.37	22.16	22.32	22.23	22.08
	16QAM1/2	22.53	22.35	22.29	22.32	22.32	22.26
	16QAM3/4	22.37	22.21	22.17	22.22	22.13	22.01
	64QAM1/2	22.27	22.02	21.87	22.17	21.98	21.87
	64QAM2/3	22.69	22.47	22.44	22.63	22.37	22.40
	64QAM3/4	22.18	22.08	21.91	22.07	22.00	21.81
	64QAM5/6	22.50	22.34	22.37	22.44	22.33	22.21
AMC	QPSK1/2	23.19	23.00	22.94	23.16	22.95	22.90
	QPSK3/4	22.96	22.82	22.86	22.86	22.69	22.78
	16QAM1/2	**23.27**	22.96	**22.99**	23.24	22.94	22.89
	16QAM3/4	23.13	22.83	22.71	23.03	22.75	22.68
	64QAM1/2	22.85	22.66	22.67	22.74	22.58	22.62
	64QAM2/3	23.20	**23.07**	22.95	23.10	22.98	22.91
	64QAM3/4	22.68	22.50	22.47	22.57	22.40	22.38
	64QAM5/6	23.01	22.76	22.66	22.94	22.63	22.59

Note : Please see next pages for above worst case power measurement plots.

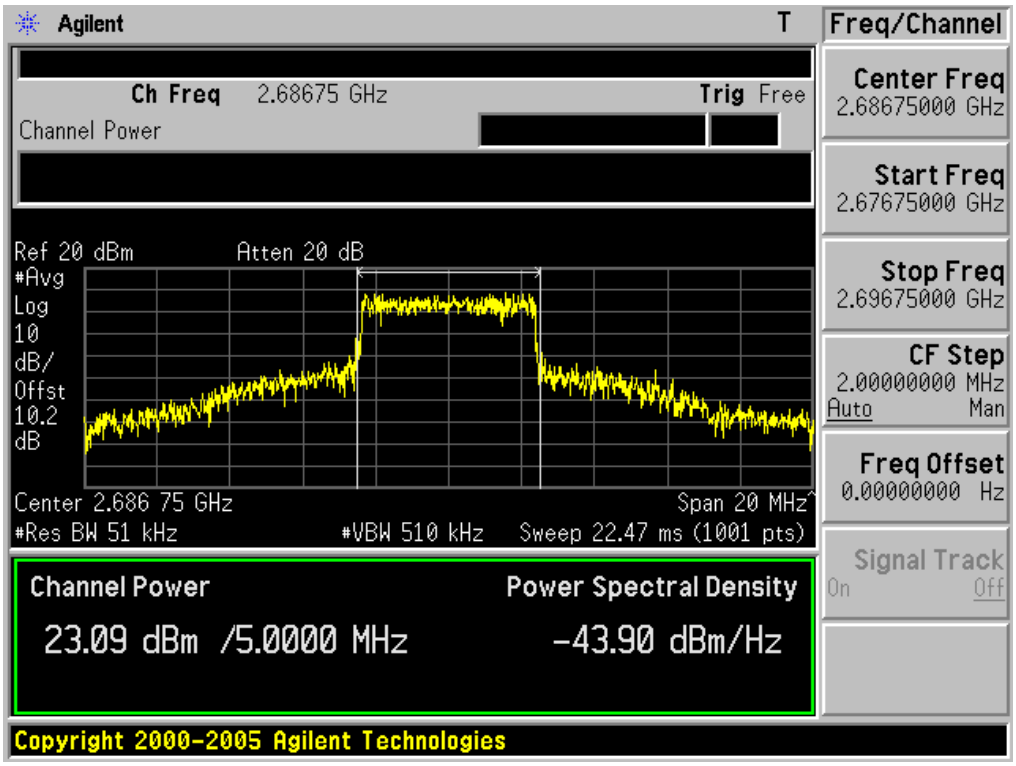
Conducted Output Power OBW: 5MHz & Lowest Frequency & AMC Zone & QPSK1/2 & Main Antenna



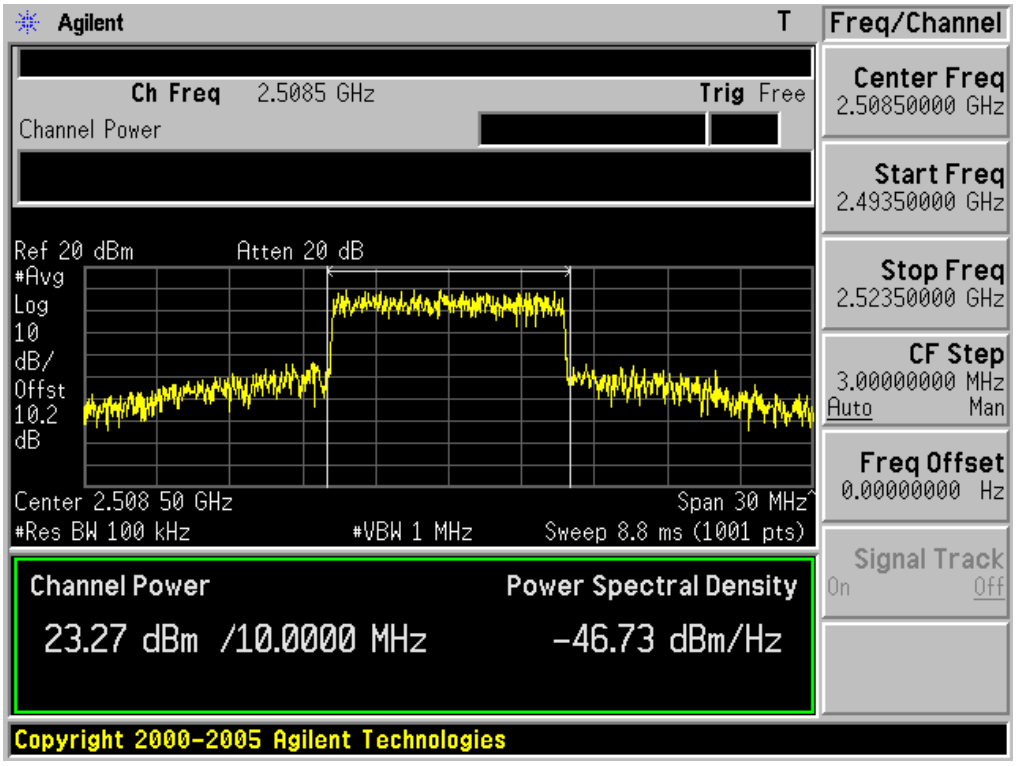
Conducted Output Power OBW: 5MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna



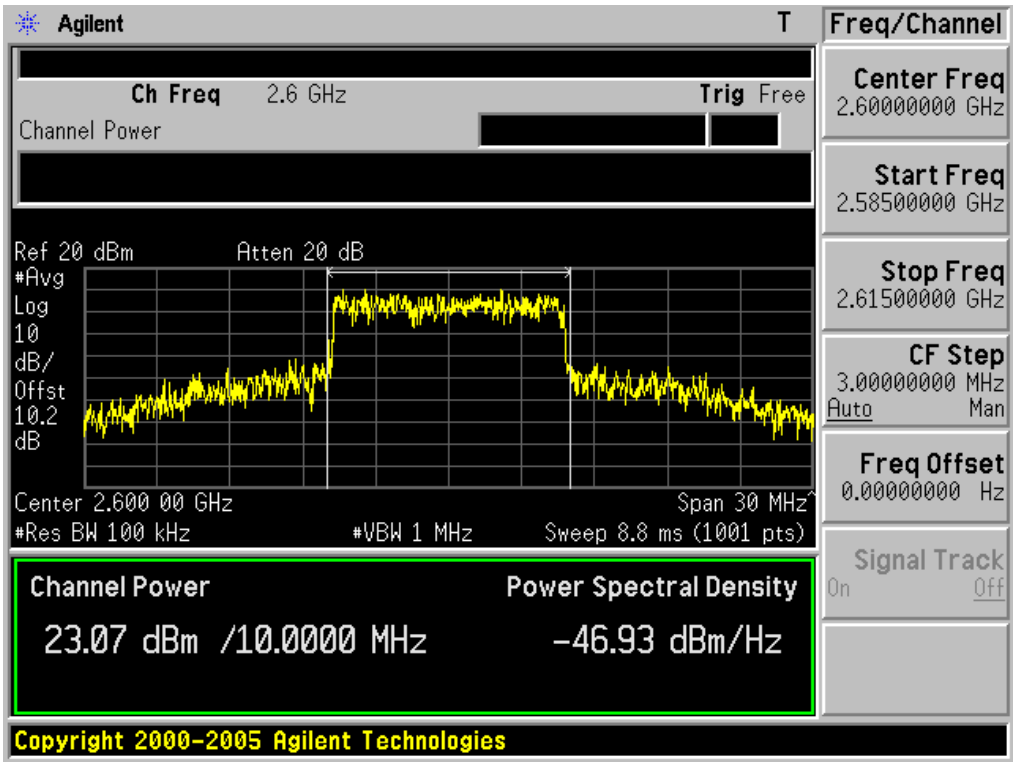
Conducted Output Power OBW: 5MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



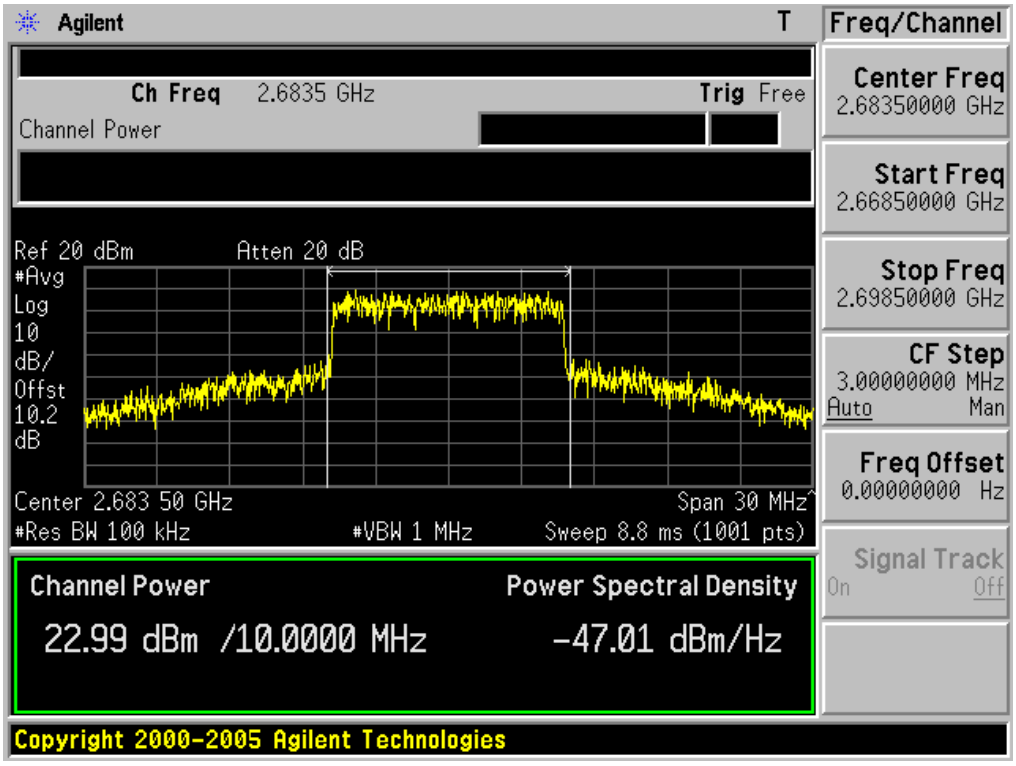
Conducted Output Power OBW: 10MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna



Conducted Output Power OBW: 10MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna



Conducted Output Power OBW: 10MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna



Measurement Data: Radiated method

- OBW: 5MHz

Tested Freq.	Mod. Type	Transmitting Antenna	EUT Position	TEST CONDITIONS				
				Ref. level (dBm)	Pol. (H/V)	Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
Lowest	QPSK1/2	Main Antenna	Z	-13.12	V	9.05	25.76	0.377
		Sub Antenna	Z	-13.93	V	9.05	24.95	0.313
	16QAM1/2	Main Antenna	Z	-13.43	V	9.05	25.45	0.351
		Sub Antenna	Z	-13.84	V	9.05	25.04	0.319
	64QAM2/3	Main Antenna	Z	-13.19	V	9.05	25.69	0.371
		Sub Antenna	Z	-13.96	V	9.05	24.92	0.310
Middle	QPSK1/2	Main Antenna	Z	-12.68	V	9.21	26.08	0.406
		Sub Antenna	Z	-14.88	V	9.21	23.88	0.244
	16QAM1/2	Main Antenna	Z	-13.02	V	9.21	25.74	0.375
		Sub Antenna	Z	-14.50	V	9.21	24.26	0.267
	64QAM2/3	Main Antenna	Z	-12.60	V	9.21	26.16	0.413
		Sub Antenna	Z	-14.76	V	9.21	24.00	0.251
Highest	QPSK1/2	Main Antenna	Z	-13.23	V	9.34	25.79	0.379
		Sub Antenna	Z	-14.44	V	9.34	24.58	0.287
	16QAM1/2	Main Antenna	Z	-13.35	V	9.34	25.67	0.369
		Sub Antenna	Z	-14.61	V	9.34	24.41	0.276
	64QAM2/3	Main Antenna	Z	-13.11	V	9.34	25.91	0.390
		Sub Antenna	Z	-14.37	V	9.34	24.65	0.292

- OBW: 10MHz

Tested Freq.	Mod. Type	Transmitting Antenna	EUT Position	TEST CONDITIONS				
				Ref. level (dBm)	Pol. (H/V)	Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
Lowest	QPSK1/2	Main Antenna	Z	-12.72	V	9.05	26.16	0.413
		Sub Antenna	Z	-13.69	V	9.05	25.19	0.330
	16QAM1/2	Main Antenna	Z	-13.02	V	9.05	25.86	0.385
		Sub Antenna	Z	-14.36	V	9.05	24.52	0.283
	64QAM2/3	Main Antenna	Z	17.12	V	9.05	26.17	0.414
		Sub Antenna	Z	16.08	V	9.05	25.13	0.326
Middle	QPSK1/2	Main Antenna	Z	-12.85	V	9.21	25.91	0.390
		Sub Antenna	Z	-14.37	V	9.21	24.39	0.275
	16QAM1/2	Main Antenna	Z	-13.37	V	9.21	25.39	0.346
		Sub Antenna	Z	-13.95	V	9.21	24.81	0.303
	64QAM2/3	Main Antenna	Z	16.77	V	9.21	25.98	0.396
		Sub Antenna	Z	15.21	V	9.21	24.42	0.277
Highest	QPSK1/2	Main Antenna	Z	-13.15	V	9.34	25.87	0.386
		Sub Antenna	Z	-15.03	V	9.34	23.99	0.251
	16QAM1/2	Main Antenna	Z	-13.01	V	9.34	26.01	0.399
		Sub Antenna	Z	-14.48	V	9.34	24.54	0.284
	64QAM2/3	Main Antenna	Z	16.54	V	9.34	25.88	0.387
		Sub Antenna	Z	14.66	V	9.34	24.00	0.251

3.2.3 Band Edge

- Procedure:

The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 51KHz(for the Associated Channel BW = 5MHz) and RBW = 100KHz(for the Associated Channel BW = 10MHz).

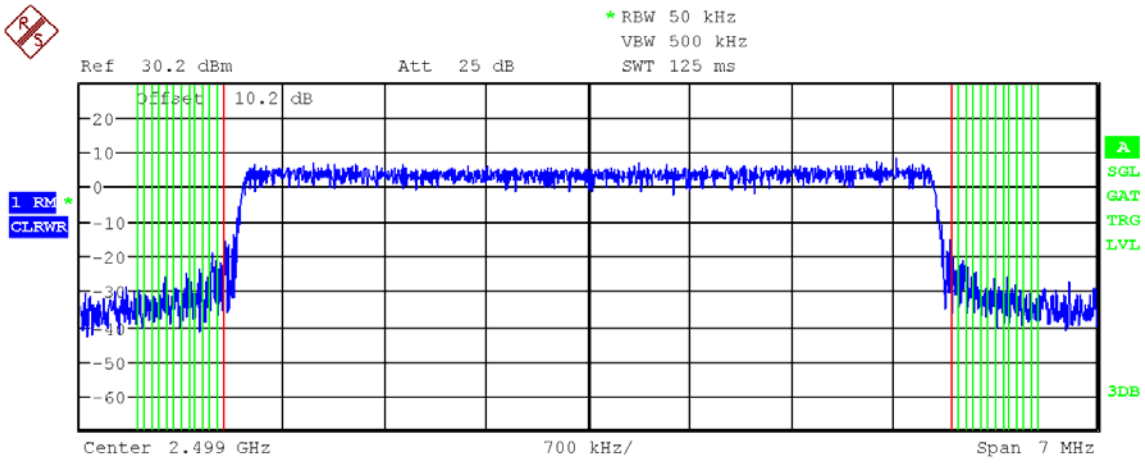
- Measurement Data: Comply

Note 1: See next pages for worst case spectrum plots.

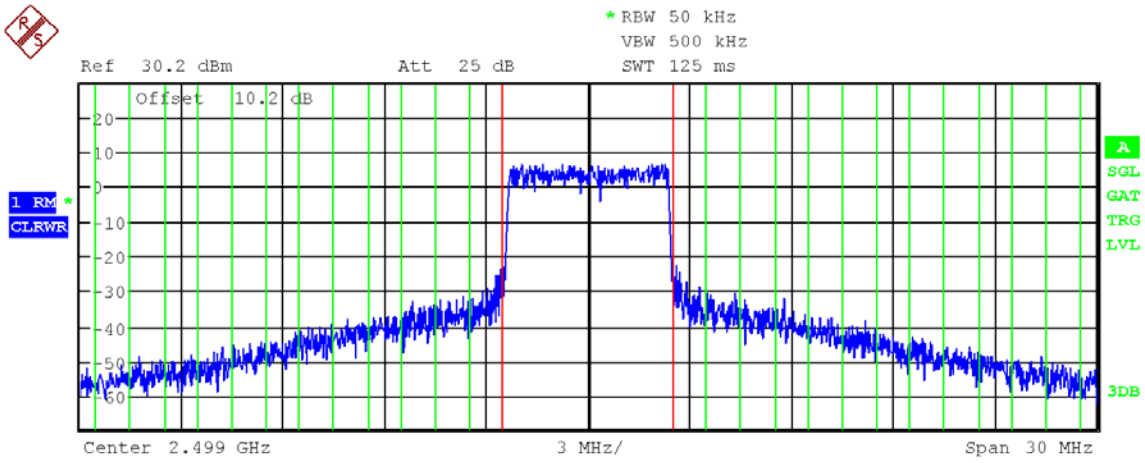
- **Minimum Standard:**

The power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor shall be not less than 43 + 10log(P) at the channel edge, the limit of emission equal to -13dBm. And 55 + 10log(P) dB at 5.5MHz from the channel edges, the limit of emission equal to -25dBm. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least on percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

Band Edge OBW: 5MHz & Lowest Frequency & AMC Zone & QPSK1/2 & Main Antenna

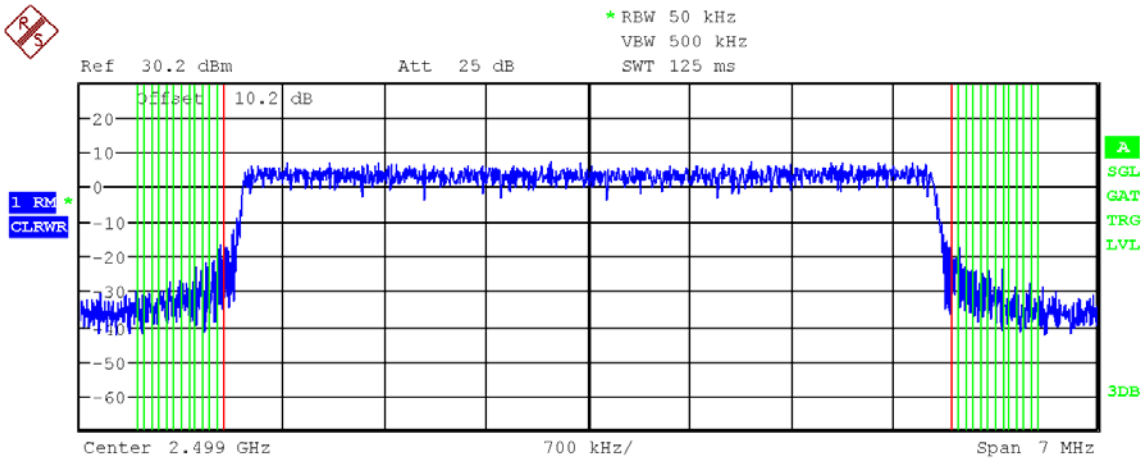


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.23 dBm	
Adjacent	50.000 kHz	2.525 MHz	-47.16 dB	-49.35 dB
Alternate	50.000 kHz	2.575 MHz	-48.23 dB	-49.01 dB
2nd Alt	50.000 kHz	2.625 MHz	-53.49 dB	-51.73 dB
3rd Alt	50.000 kHz	2.675 MHz	-51.80 dB	-52.73 dB
4th Alt	50.000 kHz	2.725 MHz	-53.83 dB	-54.29 dB
5th Alt	50.000 kHz	2.775 MHz	-54.05 dB	-54.86 dB
6th Alt	50.000 kHz	2.825 MHz	-55.05 dB	-55.16 dB
7th Alt	50.000 kHz	2.875 MHz	-57.22 dB	-55.43 dB
8th Alt	50.000 kHz	2.925 MHz	-55.15 dB	-55.96 dB
9th Alt	50.000 kHz	2.975 MHz	-57.44 dB	-57.16 dB
10th Alt	50.000 kHz	3.025 MHz	-57.10 dB	-57.48 dB
11th Alt	50.000 kHz	3.075 MHz	-57.14 dB	-57.83 dB

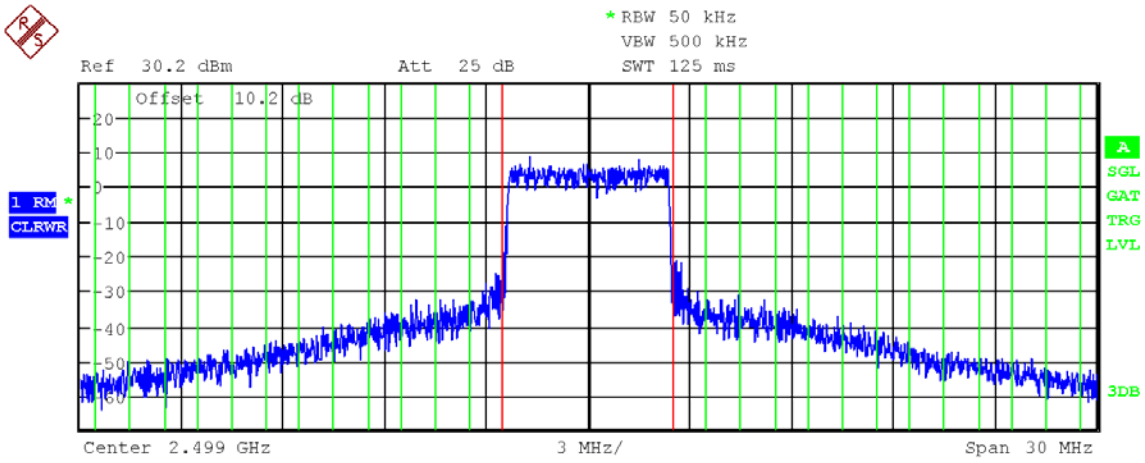


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.24 dBm	
Adjacent	1.000 MHz	4.000 MHz	-47.13 dB	-46.22 dB
Alternate	1.000 MHz	5.000 MHz	-48.30 dB	-48.07 dB
2nd Alt	1.000 MHz	6.000 MHz	-50.80 dB	-49.81 dB
3rd Alt	1.000 MHz	7.000 MHz	-52.85 dB	-51.98 dB
4th Alt	1.000 MHz	8.000 MHz	-54.58 dB	-54.23 dB
5th Alt	1.000 MHz	9.000 MHz	-57.13 dB	-56.50 dB
6th Alt	1.000 MHz	10.000 MHz	-59.33 dB	-58.13 dB
7th Alt	1.000 MHz	11.000 MHz	-61.65 dB	-60.43 dB
8th Alt	1.000 MHz	12.000 MHz	-63.29 dB	-62.07 dB
9th Alt	1.000 MHz	13.000 MHz	-64.31 dB	-63.87 dB
10th Alt	1.000 MHz	14.000 MHz	-66.15 dB	-65.31 dB

Band Edge OBW: 5MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

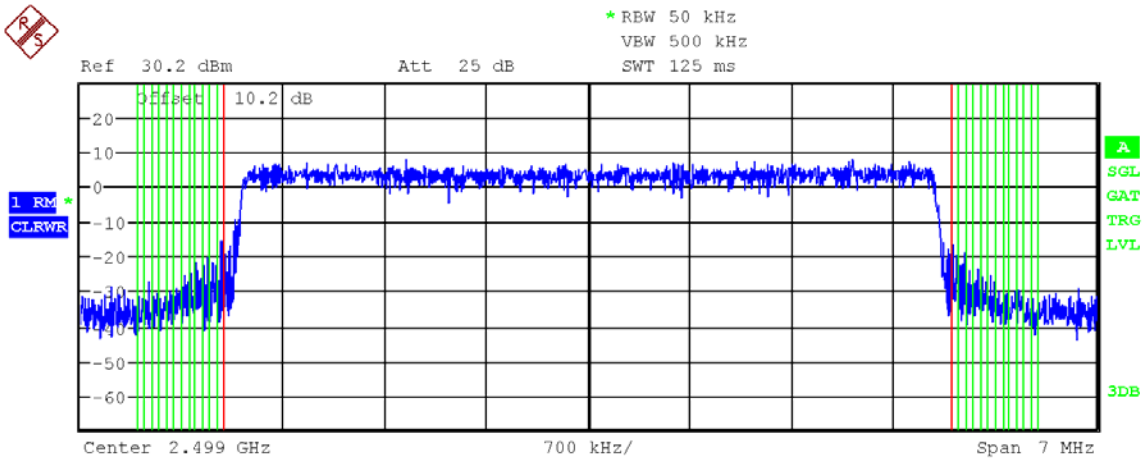


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.09 dBm	
Adjacent	50.000 kHz	2.525 MHz	-44.84 dB	-46.77 dB
Alternate	50.000 kHz	2.575 MHz	-49.60 dB	-48.00 dB
2nd Alt	50.000 kHz	2.625 MHz	-49.25 dB	-50.79 dB
3rd Alt	50.000 kHz	2.675 MHz	-52.20 dB	-52.73 dB
4th Alt	50.000 kHz	2.725 MHz	-52.70 dB	-52.61 dB
5th Alt	50.000 kHz	2.775 MHz	-54.45 dB	-53.39 dB
6th Alt	50.000 kHz	2.825 MHz	-55.22 dB	-53.58 dB
7th Alt	50.000 kHz	2.875 MHz	-55.30 dB	-56.68 dB
8th Alt	50.000 kHz	2.925 MHz	-56.32 dB	-56.33 dB
9th Alt	50.000 kHz	2.975 MHz	-58.18 dB	-58.36 dB
10th Alt	50.000 kHz	3.025 MHz	-56.65 dB	-56.76 dB
11th Alt	50.000 kHz	3.075 MHz	-58.03 dB	-57.93 dB

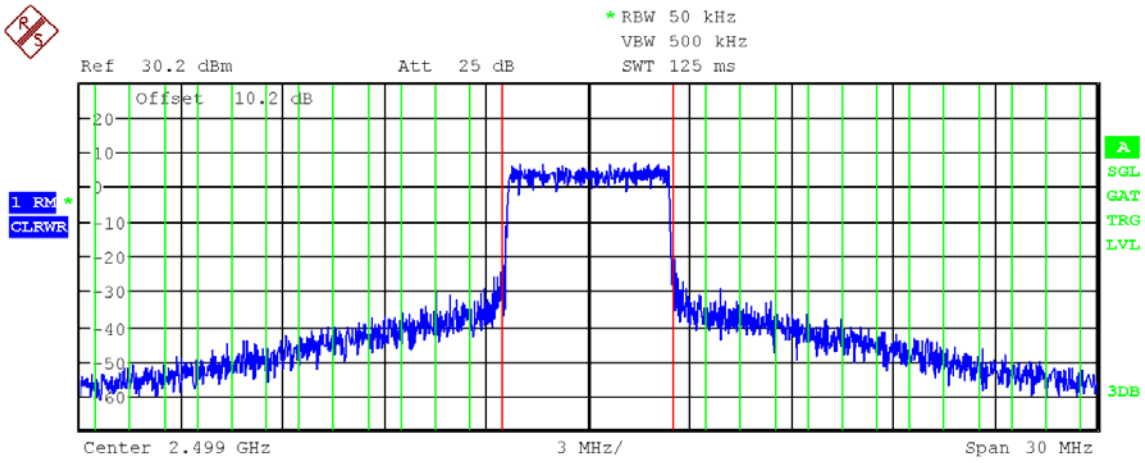


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.12 dBm	
Adjacent	1.000 MHz	4.000 MHz	-47.42 dB	-47.10 dB
Alternate	1.000 MHz	5.000 MHz	-49.18 dB	-48.25 dB
2nd Alt	1.000 MHz	6.000 MHz	-50.74 dB	-49.90 dB
3rd Alt	1.000 MHz	7.000 MHz	-53.58 dB	-52.65 dB
4th Alt	1.000 MHz	8.000 MHz	-55.85 dB	-54.55 dB
5th Alt	1.000 MHz	9.000 MHz	-57.78 dB	-56.65 dB
6th Alt	1.000 MHz	10.000 MHz	-60.25 dB	-59.89 dB
7th Alt	1.000 MHz	11.000 MHz	-61.33 dB	-61.29 dB
8th Alt	1.000 MHz	12.000 MHz	-63.15 dB	-62.68 dB
9th Alt	1.000 MHz	13.000 MHz	-65.03 dB	-64.37 dB
10th Alt	1.000 MHz	14.000 MHz	-66.48 dB	-66.17 dB

Band Edge OBW: 5MHz & Lowest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

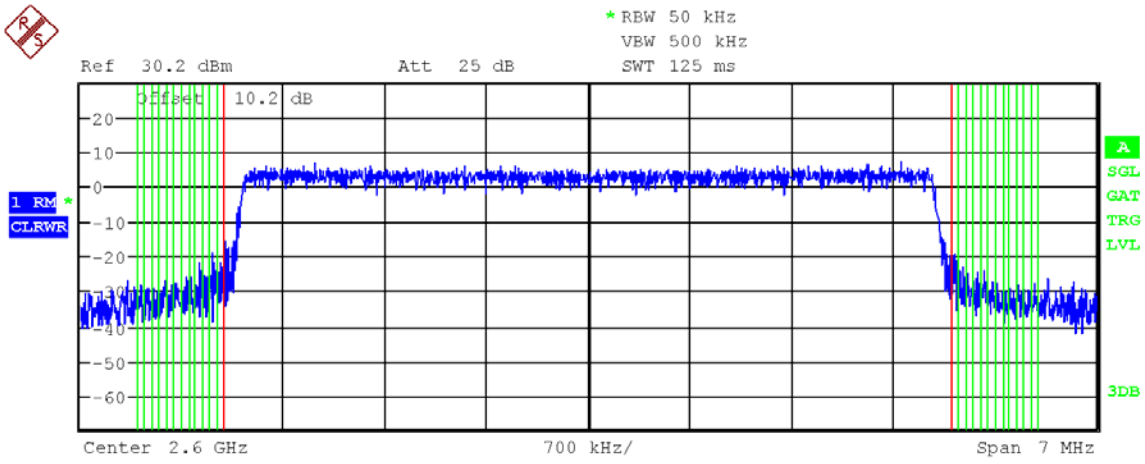


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.11 dBm	
Adjacent	50.000 kHz	2.525 MHz	-45.07 dB	-47.76 dB
Alternate	50.000 kHz	2.575 MHz	-49.63 dB	-49.13 dB
2nd Alt	50.000 kHz	2.625 MHz	-47.91 dB	-52.60 dB
3rd Alt	50.000 kHz	2.675 MHz	-51.71 dB	-53.09 dB
4th Alt	50.000 kHz	2.725 MHz	-52.85 dB	-53.28 dB
5th Alt	50.000 kHz	2.775 MHz	-54.09 dB	-54.66 dB
6th Alt	50.000 kHz	2.825 MHz	-55.62 dB	-56.33 dB
7th Alt	50.000 kHz	2.875 MHz	-56.66 dB	-56.41 dB
8th Alt	50.000 kHz	2.925 MHz	-58.04 dB	-56.86 dB
9th Alt	50.000 kHz	2.975 MHz	-57.16 dB	-56.65 dB
10th Alt	50.000 kHz	3.025 MHz	-57.16 dB	-57.97 dB
11th Alt	50.000 kHz	3.075 MHz	-58.42 dB	-58.81 dB

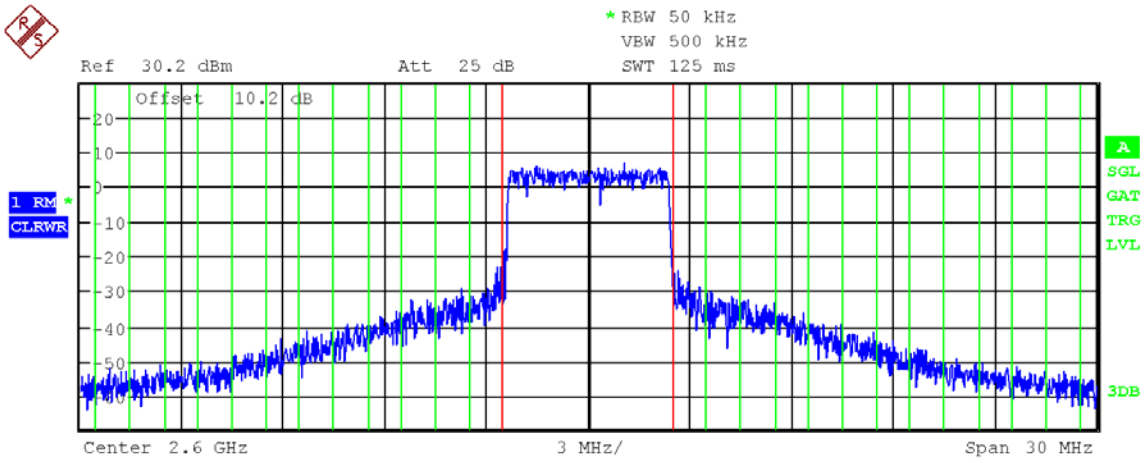


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		23.10 dBm	
Adjacent	1.000 MHz	4.000 MHz	-47.61 dB	-46.63 dB
Alternate	1.000 MHz	5.000 MHz	-49.20 dB	-48.64 dB
2nd Alt	1.000 MHz	6.000 MHz	-51.96 dB	-50.37 dB
3rd Alt	1.000 MHz	7.000 MHz	-53.30 dB	-52.95 dB
4th Alt	1.000 MHz	8.000 MHz	-55.07 dB	-54.39 dB
5th Alt	1.000 MHz	9.000 MHz	-57.92 dB	-56.48 dB
6th Alt	1.000 MHz	10.000 MHz	-59.84 dB	-58.38 dB
7th Alt	1.000 MHz	11.000 MHz	-61.68 dB	-61.16 dB
8th Alt	1.000 MHz	12.000 MHz	-63.50 dB	-62.65 dB
9th Alt	1.000 MHz	13.000 MHz	-65.24 dB	-64.13 dB
10th Alt	1.000 MHz	14.000 MHz	-66.49 dB	-65.60 dB

Band Edge OBW: 5MHz & Middle Frequency & AMC Zone & QPSK1/2 & Main Antenna

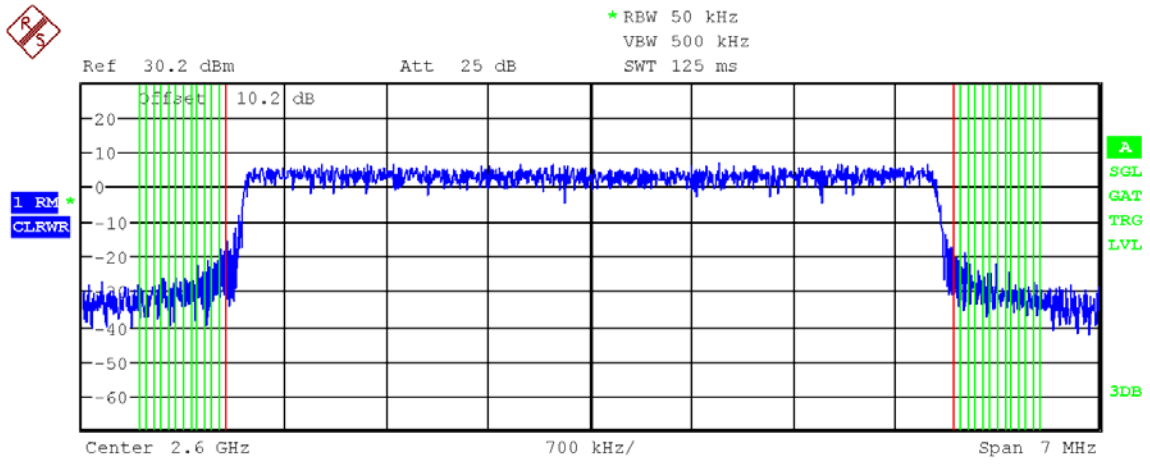


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.76 dBm	
Adjacent	50.000 kHz	2.525 MHz	-47.25 dB	-46.49 dB
Alternate	50.000 kHz	2.575 MHz	-47.63 dB	-50.36 dB
2nd Alt	50.000 kHz	2.625 MHz	-52.53 dB	-50.82 dB
3rd Alt	50.000 kHz	2.675 MHz	-50.45 dB	-51.79 dB
4th Alt	50.000 kHz	2.725 MHz	-52.22 dB	-52.47 dB
5th Alt	50.000 kHz	2.775 MHz	-53.24 dB	-54.00 dB
6th Alt	50.000 kHz	2.825 MHz	-53.83 dB	-55.02 dB
7th Alt	50.000 kHz	2.875 MHz	-54.99 dB	-55.45 dB
8th Alt	50.000 kHz	2.925 MHz	-53.50 dB	-55.72 dB
9th Alt	50.000 kHz	2.975 MHz	-55.91 dB	-54.30 dB
10th Alt	50.000 kHz	3.025 MHz	-55.50 dB	-56.12 dB
11th Alt	50.000 kHz	3.075 MHz	-55.98 dB	-55.93 dB

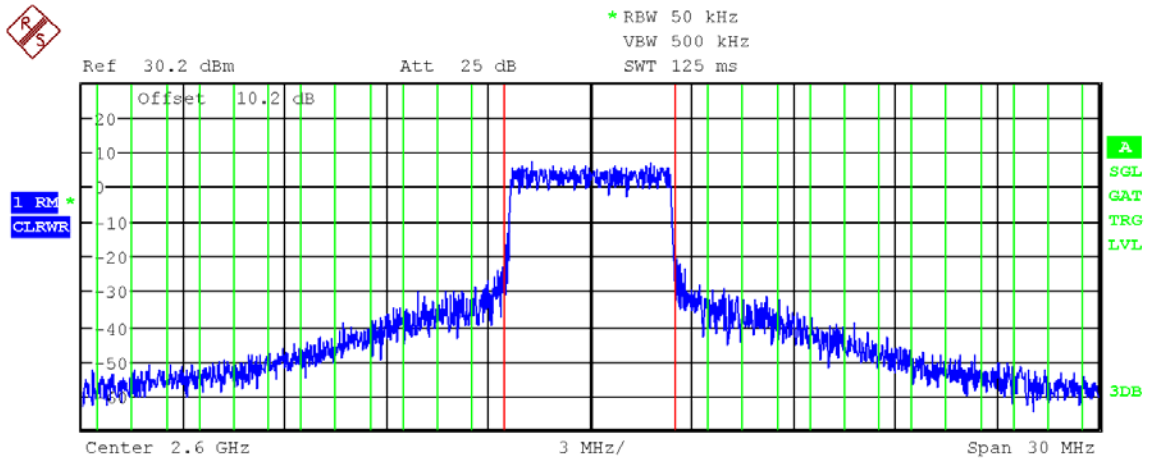


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.75 dBm	
Adjacent	1.000 MHz	4.000 MHz	-45.20 dB	-44.85 dB
Alternate	1.000 MHz	5.000 MHz	-47.40 dB	-46.92 dB
2nd Alt	1.000 MHz	6.000 MHz	-50.28 dB	-49.61 dB
3rd Alt	1.000 MHz	7.000 MHz	-53.48 dB	-52.84 dB
4th Alt	1.000 MHz	8.000 MHz	-55.88 dB	-55.40 dB
5th Alt	1.000 MHz	9.000 MHz	-58.62 dB	-58.56 dB
6th Alt	1.000 MHz	10.000 MHz	-61.45 dB	-60.78 dB
7th Alt	1.000 MHz	11.000 MHz	-64.22 dB	-63.68 dB
8th Alt	1.000 MHz	12.000 MHz	-64.89 dB	-64.95 dB
9th Alt	1.000 MHz	13.000 MHz	-66.21 dB	-65.93 dB
10th Alt	1.000 MHz	14.000 MHz	-66.92 dB	-67.03 dB

Band Edge OBW: 5MHz & Middle Frequency & AMC Zone & 16QAM1/2 & Main Antenna

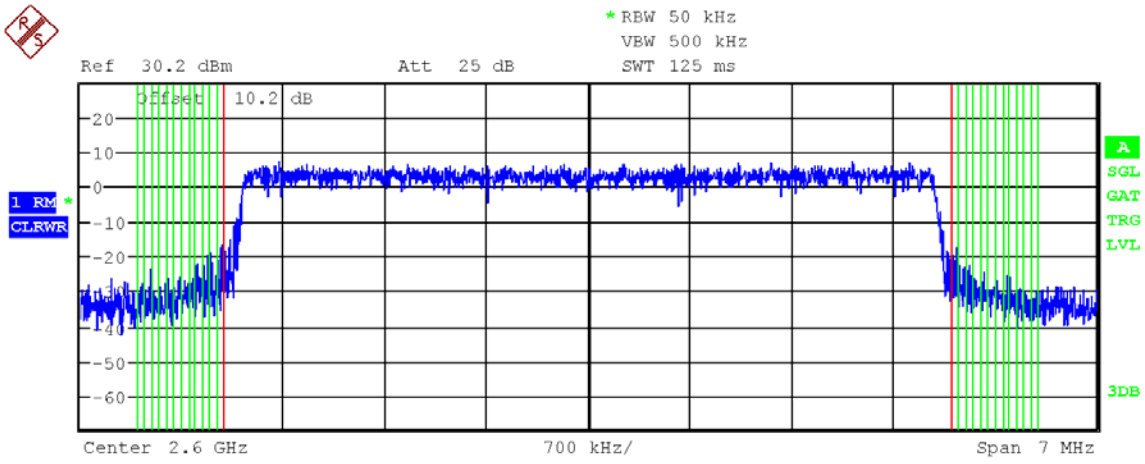


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.86 dBm	
Adjacent	50.000 kHz	2.525 MHz	-44.52 dB	-46.70 dB
Alternate	50.000 kHz	2.575 MHz	-48.53 dB	-47.83 dB
2nd Alt	50.000 kHz	2.625 MHz	-48.78 dB	-48.83 dB
3rd Alt	50.000 kHz	2.675 MHz	-50.13 dB	-50.74 dB
4th Alt	50.000 kHz	2.725 MHz	-52.37 dB	-52.54 dB
5th Alt	50.000 kHz	2.775 MHz	-52.20 dB	-51.90 dB
6th Alt	50.000 kHz	2.825 MHz	-53.56 dB	-54.49 dB
7th Alt	50.000 kHz	2.875 MHz	-53.73 dB	-53.53 dB
8th Alt	50.000 kHz	2.925 MHz	-53.26 dB	-54.67 dB
9th Alt	50.000 kHz	2.975 MHz	-54.79 dB	-54.91 dB
10th Alt	50.000 kHz	3.025 MHz	-54.67 dB	-54.64 dB
11th Alt	50.000 kHz	3.075 MHz	-55.44 dB	-55.26 dB

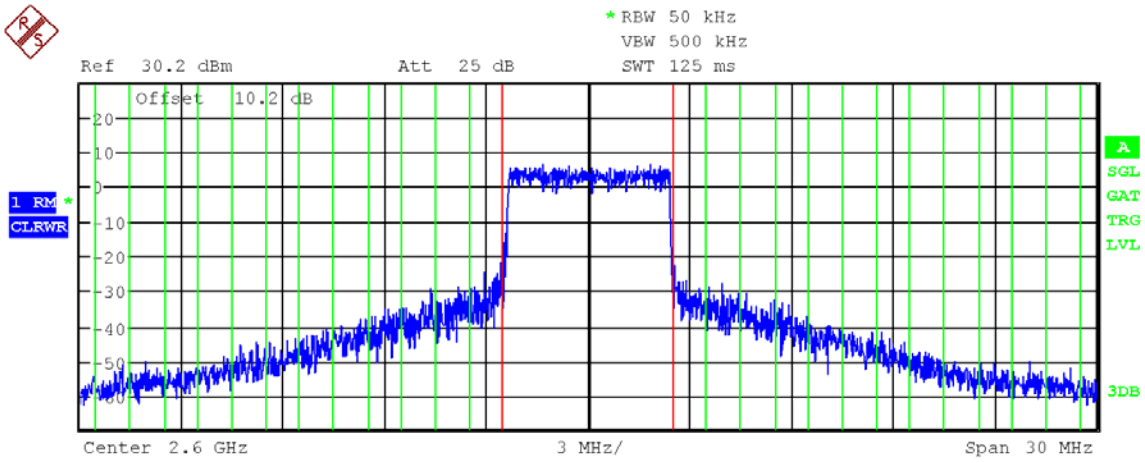


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.88 dBm	
Adjacent	1.000 MHz	4.000 MHz	-44.57 dB	-44.97 dB
Alternate	1.000 MHz	5.000 MHz	-47.42 dB	-46.78 dB
2nd Alt	1.000 MHz	6.000 MHz	-49.90 dB	-49.69 dB
3rd Alt	1.000 MHz	7.000 MHz	-53.98 dB	-53.15 dB
4th Alt	1.000 MHz	8.000 MHz	-57.23 dB	-55.93 dB
5th Alt	1.000 MHz	9.000 MHz	-59.78 dB	-58.92 dB
6th Alt	1.000 MHz	10.000 MHz	-62.19 dB	-62.04 dB
7th Alt	1.000 MHz	11.000 MHz	-63.55 dB	-63.52 dB
8th Alt	1.000 MHz	12.000 MHz	-64.87 dB	-64.70 dB
9th Alt	1.000 MHz	13.000 MHz	-65.64 dB	-66.11 dB
10th Alt	1.000 MHz	14.000 MHz	-67.29 dB	-67.93 dB

Band Edge OBW: 5MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna

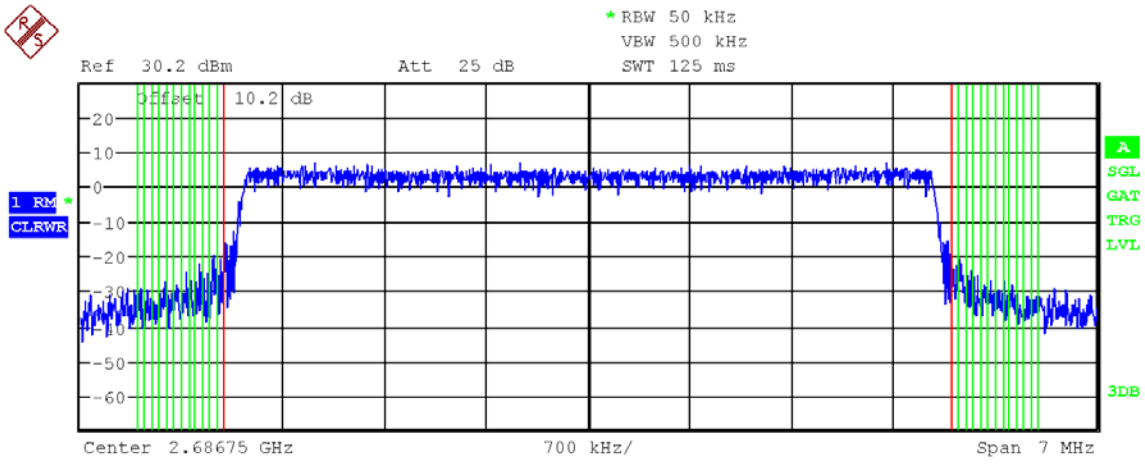


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.86 dBm	
Adjacent	50.000 kHz	2.525 MHz	-44.63 dB	-47.03 dB
Alternate	50.000 kHz	2.575 MHz	-48.16 dB	-49.48 dB
2nd Alt	50.000 kHz	2.625 MHz	-47.85 dB	-50.44 dB
3rd Alt	50.000 kHz	2.675 MHz	-49.92 dB	-52.50 dB
4th Alt	50.000 kHz	2.725 MHz	-52.77 dB	-52.52 dB
5th Alt	50.000 kHz	2.775 MHz	-53.02 dB	-54.18 dB
6th Alt	50.000 kHz	2.825 MHz	-54.05 dB	-54.67 dB
7th Alt	50.000 kHz	2.875 MHz	-54.22 dB	-54.63 dB
8th Alt	50.000 kHz	2.925 MHz	-54.92 dB	-55.60 dB
9th Alt	50.000 kHz	2.975 MHz	-55.31 dB	-54.82 dB
10th Alt	50.000 kHz	3.025 MHz	-54.30 dB	-56.11 dB
11th Alt	50.000 kHz	3.075 MHz	-55.18 dB	-56.32 dB

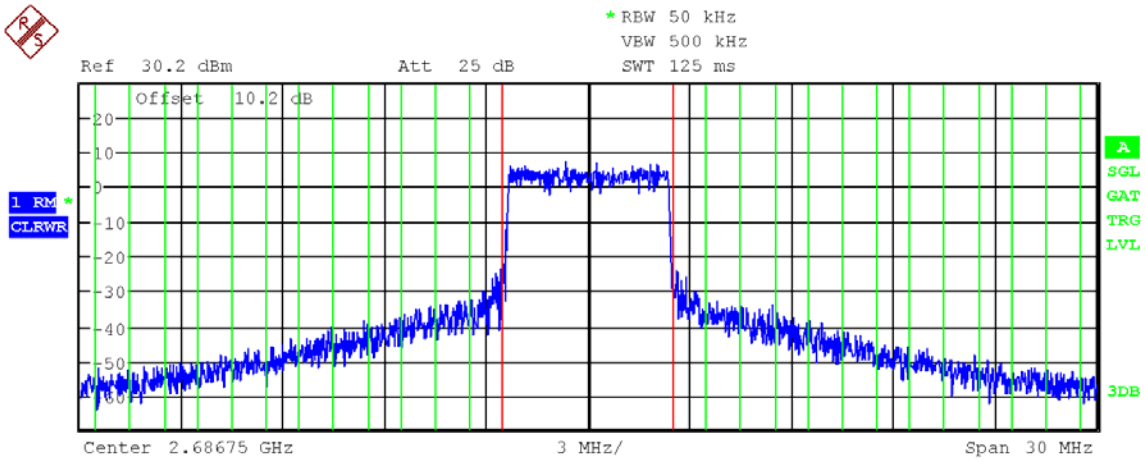


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.87 dBm	
Adjacent	1.000 MHz	4.000 MHz	-44.73 dB	-44.61 dB
Alternate	1.000 MHz	5.000 MHz	-47.11 dB	-47.50 dB
2nd Alt	1.000 MHz	6.000 MHz	-50.22 dB	-49.53 dB
3rd Alt	1.000 MHz	7.000 MHz	-53.30 dB	-53.18 dB
4th Alt	1.000 MHz	8.000 MHz	-56.15 dB	-55.56 dB
5th Alt	1.000 MHz	9.000 MHz	-59.14 dB	-58.18 dB
6th Alt	1.000 MHz	10.000 MHz	-60.56 dB	-61.35 dB
7th Alt	1.000 MHz	11.000 MHz	-63.60 dB	-64.08 dB
8th Alt	1.000 MHz	12.000 MHz	-65.47 dB	-65.16 dB
9th Alt	1.000 MHz	13.000 MHz	-65.90 dB	-66.21 dB
10th Alt	1.000 MHz	14.000 MHz	-67.14 dB	-67.13 dB

Band Edge OBW: 5MHz & Highest Frequency & AMC Zone & QPSK1/2 & Main Antenna

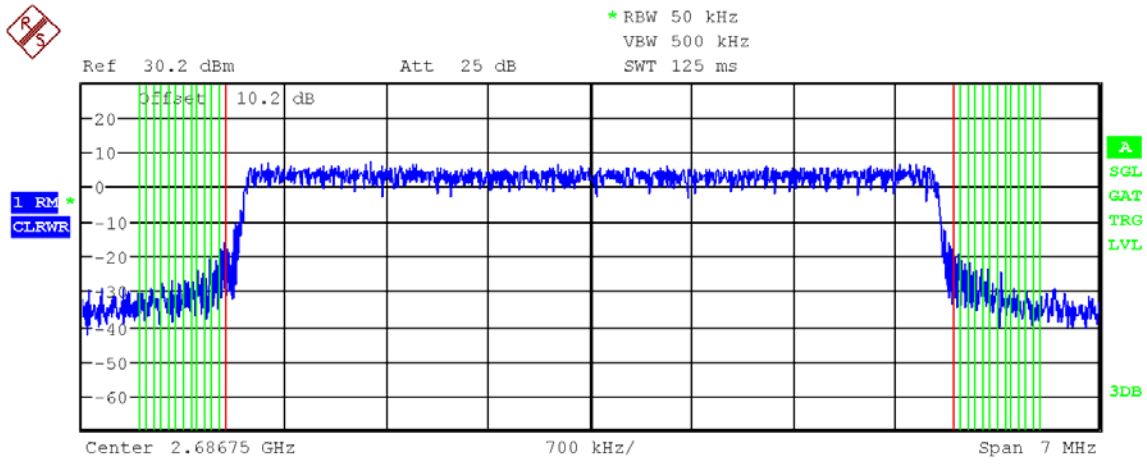


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.81 dBm	
Adjacent	50.000 kHz	2.525 MHz	-49.19 dB	-48.68 dB
Alternate	50.000 kHz	2.575 MHz	-47.29 dB	-48.99 dB
2nd Alt	50.000 kHz	2.625 MHz	-52.95 dB	-51.48 dB
3rd Alt	50.000 kHz	2.675 MHz	-50.97 dB	-53.41 dB
4th Alt	50.000 kHz	2.725 MHz	-52.92 dB	-53.96 dB
5th Alt	50.000 kHz	2.775 MHz	-53.95 dB	-54.41 dB
6th Alt	50.000 kHz	2.825 MHz	-54.56 dB	-55.18 dB
7th Alt	50.000 kHz	2.875 MHz	-56.02 dB	-56.05 dB
8th Alt	50.000 kHz	2.925 MHz	-54.91 dB	-55.27 dB
9th Alt	50.000 kHz	2.975 MHz	-56.73 dB	-57.32 dB
10th Alt	50.000 kHz	3.025 MHz	-57.20 dB	-57.47 dB
11th Alt	50.000 kHz	3.075 MHz	-57.26 dB	-56.74 dB

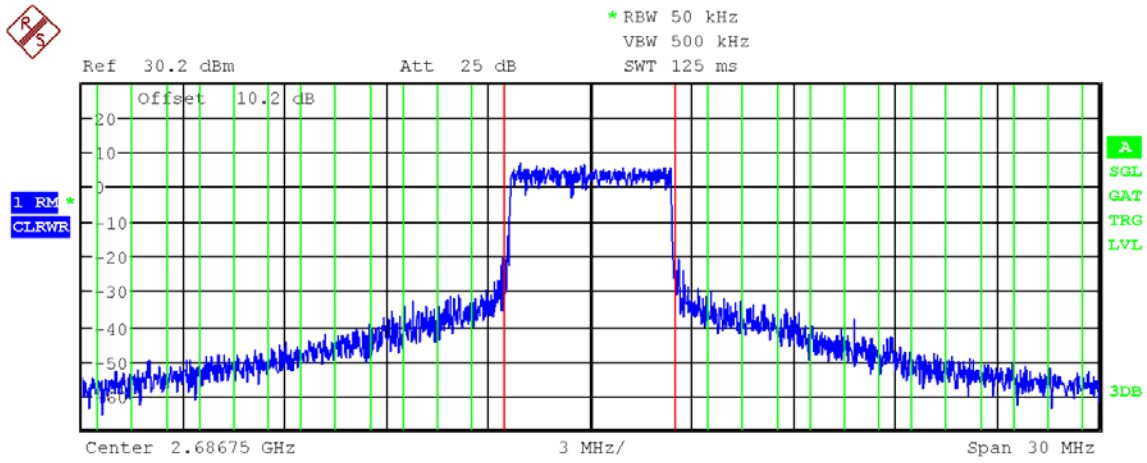


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.87 dBm	
Adjacent	1.000 MHz	4.000 MHz	-46.87 dB	-46.91 dB
Alternate	1.000 MHz	5.000 MHz	-49.02 dB	-48.82 dB
2nd Alt	1.000 MHz	6.000 MHz	-52.20 dB	-51.43 dB
3rd Alt	1.000 MHz	7.000 MHz	-54.36 dB	-54.32 dB
4th Alt	1.000 MHz	8.000 MHz	-55.76 dB	-56.31 dB
5th Alt	1.000 MHz	9.000 MHz	-58.91 dB	-59.24 dB
6th Alt	1.000 MHz	10.000 MHz	-60.98 dB	-60.97 dB
7th Alt	1.000 MHz	11.000 MHz	-62.83 dB	-62.97 dB
8th Alt	1.000 MHz	12.000 MHz	-64.37 dB	-64.42 dB
9th Alt	1.000 MHz	13.000 MHz	-65.76 dB	-65.48 dB
10th Alt	1.000 MHz	14.000 MHz	-66.55 dB	-66.64 dB

Band Edge OBW: 5MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

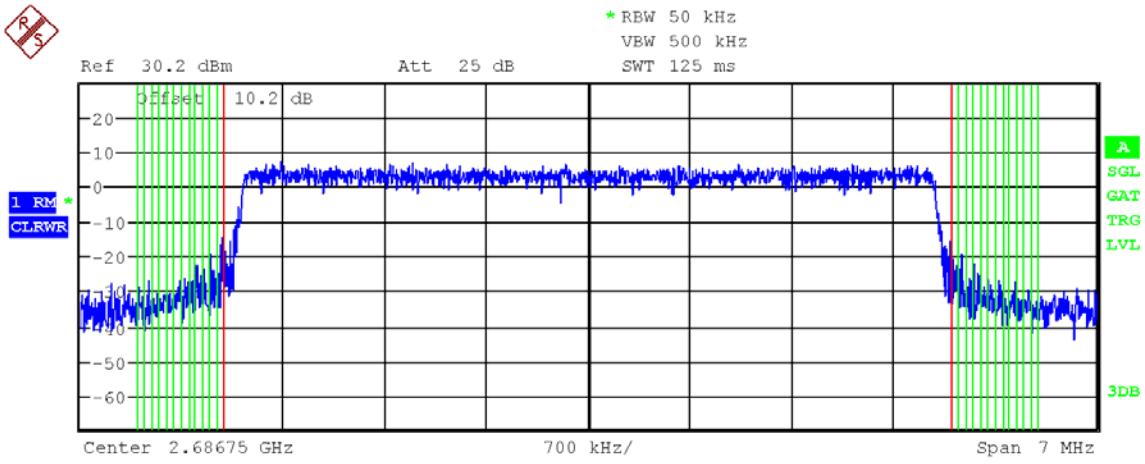


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.83 dBm	
Adjacent	50.000 kHz	2.525 MHz	-44.86 dB	-46.21 dB
Alternate	50.000 kHz	2.575 MHz	-49.02 dB	-48.79 dB
2nd Alt	50.000 kHz	2.625 MHz	-49.20 dB	-50.28 dB
3rd Alt	50.000 kHz	2.675 MHz	-51.15 dB	-51.39 dB
4th Alt	50.000 kHz	2.725 MHz	-52.97 dB	-51.87 dB
5th Alt	50.000 kHz	2.775 MHz	-53.44 dB	-53.97 dB
6th Alt	50.000 kHz	2.825 MHz	-54.02 dB	-53.49 dB
7th Alt	50.000 kHz	2.875 MHz	-55.25 dB	-55.63 dB
8th Alt	50.000 kHz	2.925 MHz	-54.59 dB	-55.73 dB
9th Alt	50.000 kHz	2.975 MHz	-56.35 dB	-57.44 dB
10th Alt	50.000 kHz	3.025 MHz	-55.65 dB	-57.00 dB
11th Alt	50.000 kHz	3.075 MHz	-56.40 dB	-57.32 dB

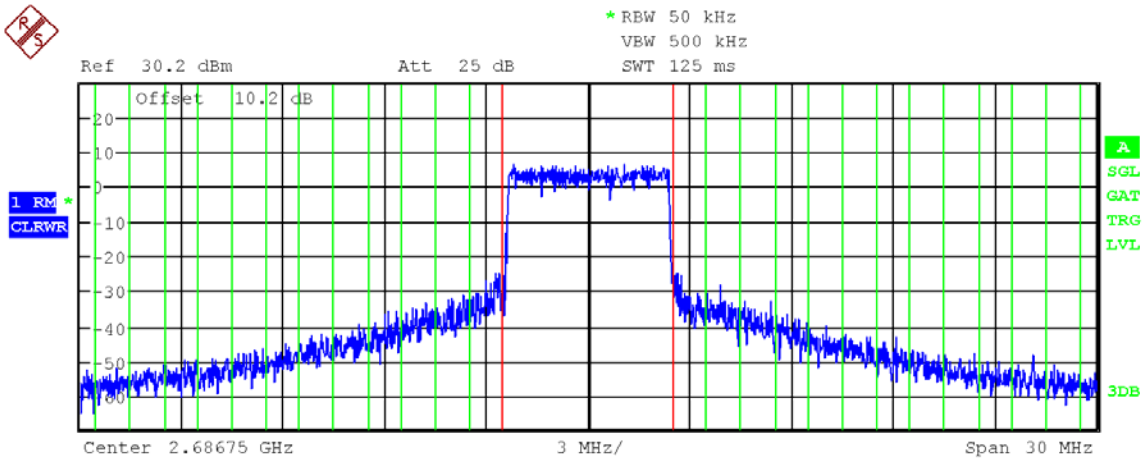


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.93 dBm	
Adjacent	1.000 MHz	4.000 MHz	-46.20 dB	-46.52 dB
Alternate	1.000 MHz	5.000 MHz	-48.86 dB	-48.74 dB
2nd Alt	1.000 MHz	6.000 MHz	-51.88 dB	-51.18 dB
3rd Alt	1.000 MHz	7.000 MHz	-54.85 dB	-54.89 dB
4th Alt	1.000 MHz	8.000 MHz	-56.97 dB	-56.40 dB
5th Alt	1.000 MHz	9.000 MHz	-59.35 dB	-58.92 dB
6th Alt	1.000 MHz	10.000 MHz	-61.29 dB	-61.80 dB
7th Alt	1.000 MHz	11.000 MHz	-62.50 dB	-63.13 dB
8th Alt	1.000 MHz	12.000 MHz	-64.04 dB	-64.33 dB
9th Alt	1.000 MHz	13.000 MHz	-65.30 dB	-65.96 dB
10th Alt	1.000 MHz	14.000 MHz	-66.97 dB	-66.43 dB

Band Edge OBW: 5MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

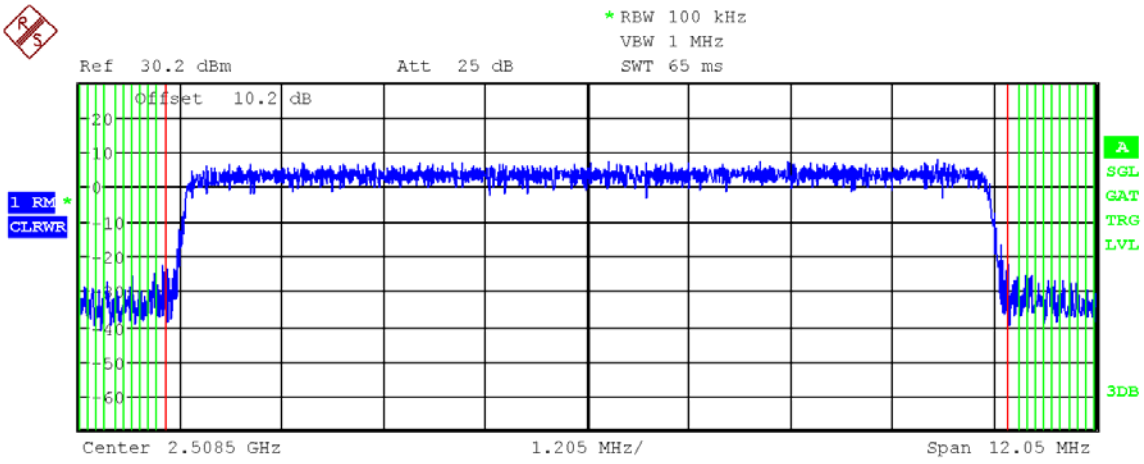


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.88 dBm	
Adjacent	50.000 kHz	2.525 MHz	-43.76 dB	-47.89 dB
Alternate	50.000 kHz	2.575 MHz	-48.37 dB	-49.63 dB
2nd Alt	50.000 kHz	2.625 MHz	-48.75 dB	-52.78 dB
3rd Alt	50.000 kHz	2.675 MHz	-50.56 dB	-51.67 dB
4th Alt	50.000 kHz	2.725 MHz	-53.05 dB	-54.59 dB
5th Alt	50.000 kHz	2.775 MHz	-53.52 dB	-54.65 dB
6th Alt	50.000 kHz	2.825 MHz	-54.42 dB	-54.36 dB
7th Alt	50.000 kHz	2.875 MHz	-55.38 dB	-57.24 dB
8th Alt	50.000 kHz	2.925 MHz	-56.14 dB	-55.49 dB
9th Alt	50.000 kHz	2.975 MHz	-56.56 dB	-57.39 dB
10th Alt	50.000 kHz	3.025 MHz	-56.23 dB	-56.53 dB
11th Alt	50.000 kHz	3.075 MHz	-56.52 dB	-59.04 dB

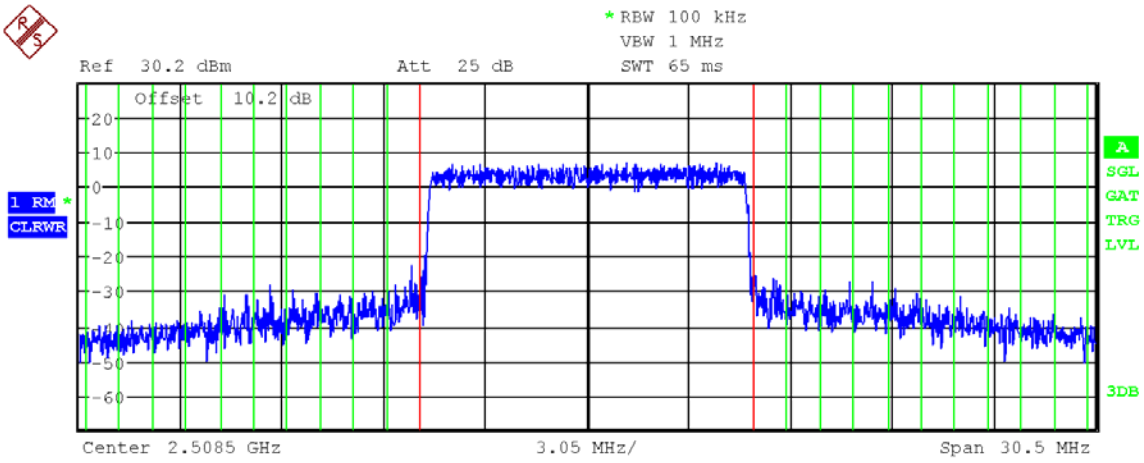


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	5.000 MHz		22.92 dBm	
Adjacent	1.000 MHz	4.000 MHz	-46.62 dB	-45.87 dB
Alternate	1.000 MHz	5.000 MHz	-49.09 dB	-48.63 dB
2nd Alt	1.000 MHz	6.000 MHz	-52.09 dB	-51.74 dB
3rd Alt	1.000 MHz	7.000 MHz	-54.93 dB	-55.31 dB
4th Alt	1.000 MHz	8.000 MHz	-56.99 dB	-56.89 dB
5th Alt	1.000 MHz	9.000 MHz	-59.62 dB	-59.14 dB
6th Alt	1.000 MHz	10.000 MHz	-61.39 dB	-61.33 dB
7th Alt	1.000 MHz	11.000 MHz	-63.30 dB	-63.22 dB
8th Alt	1.000 MHz	12.000 MHz	-64.36 dB	-64.81 dB
9th Alt	1.000 MHz	13.000 MHz	-65.52 dB	-65.41 dB
10th Alt	1.000 MHz	14.000 MHz	-66.81 dB	-66.55 dB

Band Edge OBW: 10MHz & Lowest Frequency & AMC Zone & QPSK1/2 & Main Antenna

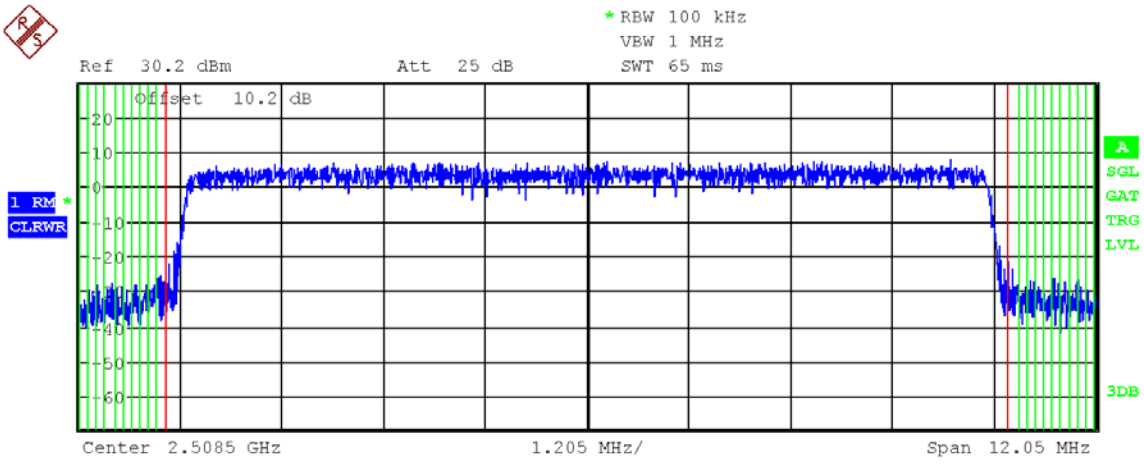


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.12 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.89 dB	-53.70 dB
Alternate	100.000 kHz	5.150 MHz	-52.72 dB	-54.38 dB
2nd Alt	100.000 kHz	5.250 MHz	-57.25 dB	-53.65 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.31 dB	-55.47 dB
4th Alt	100.000 kHz	5.450 MHz	-55.25 dB	-55.37 dB
5th Alt	100.000 kHz	5.550 MHz	-56.63 dB	-55.07 dB
6th Alt	100.000 kHz	5.650 MHz	-56.28 dB	-55.85 dB
7th Alt	100.000 kHz	5.750 MHz	-56.83 dB	-55.01 dB
8th Alt	100.000 kHz	5.850 MHz	-57.61 dB	-56.51 dB
9th Alt	100.000 kHz	5.950 MHz	-56.48 dB	-57.21 dB

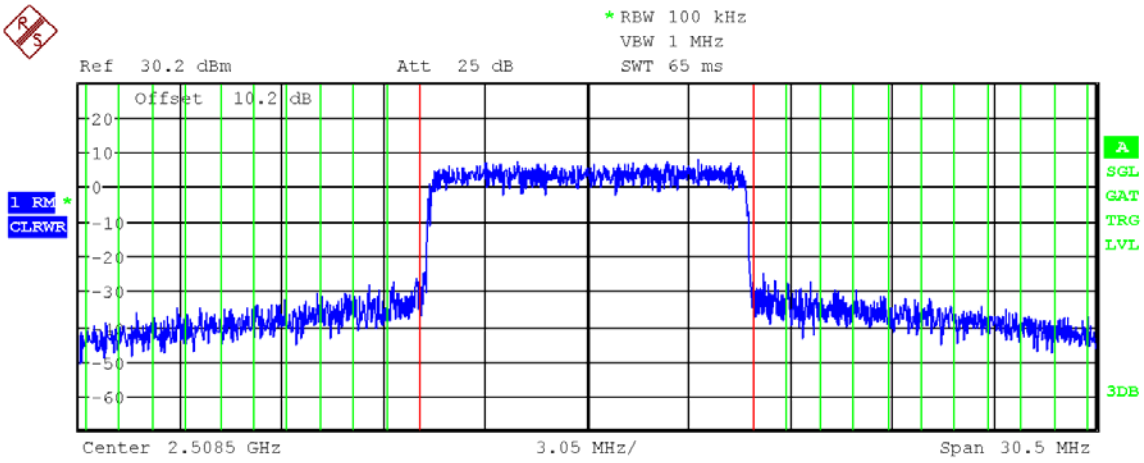


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.07 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.58 dB	-47.54 dB
Alternate	1.000 MHz	7.500 MHz	-49.85 dB	-48.14 dB
2nd Alt	1.000 MHz	8.500 MHz	-49.63 dB	-49.19 dB
3rd Alt	1.000 MHz	9.500 MHz	-50.83 dB	-48.99 dB
4th Alt	1.000 MHz	10.500 MHz	-51.63 dB	-51.24 dB
5th Alt	1.000 MHz	11.500 MHz	-53.78 dB	-51.67 dB
6th Alt	1.000 MHz	12.500 MHz	-55.17 dB	-53.38 dB
7th Alt	1.000 MHz	13.500 MHz	-56.28 dB	-54.39 dB
8th Alt	1.000 MHz	14.500 MHz	-57.15 dB	-55.52 dB

Band Edge OBW: 10MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

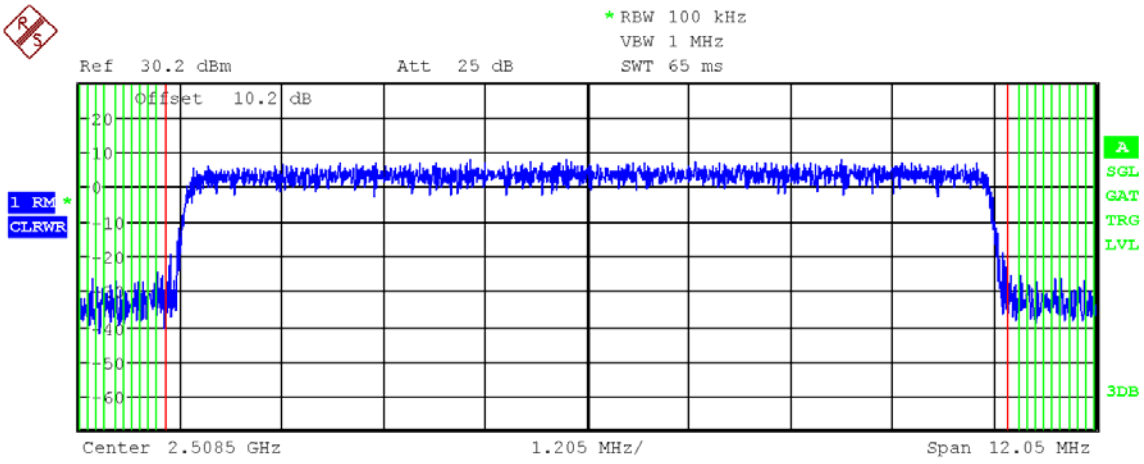


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.21 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.75 dB	-53.15 dB
Alternate	100.000 kHz	5.150 MHz	-55.13 dB	-55.38 dB
2nd Alt	100.000 kHz	5.250 MHz	-56.06 dB	-54.21 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.58 dB	-55.50 dB
4th Alt	100.000 kHz	5.450 MHz	-57.63 dB	-56.66 dB
5th Alt	100.000 kHz	5.550 MHz	-56.87 dB	-54.81 dB
6th Alt	100.000 kHz	5.650 MHz	-56.06 dB	-55.94 dB
7th Alt	100.000 kHz	5.750 MHz	-56.92 dB	-55.60 dB
8th Alt	100.000 kHz	5.850 MHz	-57.68 dB	-55.48 dB
9th Alt	100.000 kHz	5.950 MHz	-57.96 dB	-57.52 dB

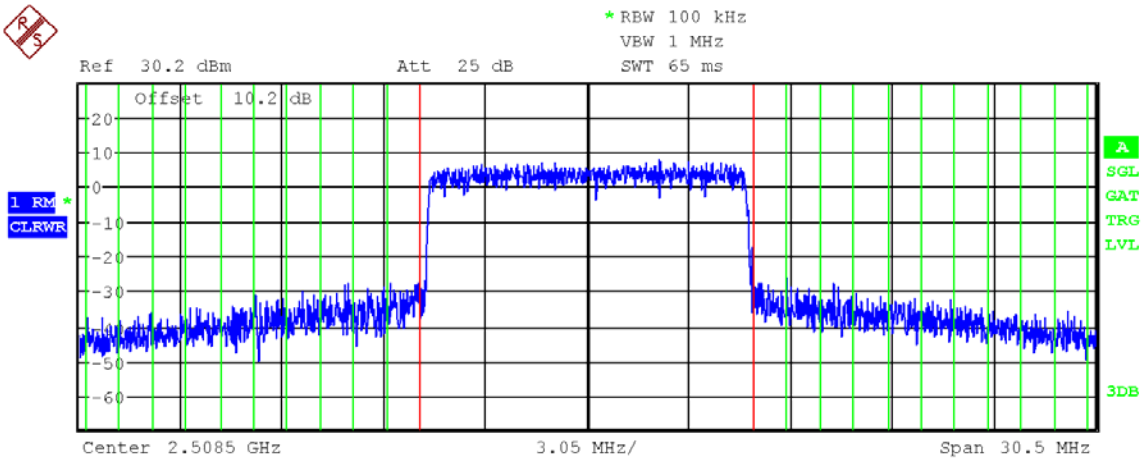


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.18 dBm	
Adjacent	1.000 MHz	6.500 MHz	-47.89 dB	-46.75 dB
Alternate	1.000 MHz	7.500 MHz	-48.61 dB	-48.02 dB
2nd Alt	1.000 MHz	8.500 MHz	-50.59 dB	-48.54 dB
3rd Alt	1.000 MHz	9.500 MHz	-50.95 dB	-50.14 dB
4th Alt	1.000 MHz	10.500 MHz	-52.16 dB	-50.30 dB
5th Alt	1.000 MHz	11.500 MHz	-53.37 dB	-51.82 dB
6th Alt	1.000 MHz	12.500 MHz	-54.06 dB	-52.79 dB
7th Alt	1.000 MHz	13.500 MHz	-55.53 dB	-53.85 dB
8th Alt	1.000 MHz	14.500 MHz	-56.75 dB	-54.80 dB

Band Edge OBW: 10MHz & Lowest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

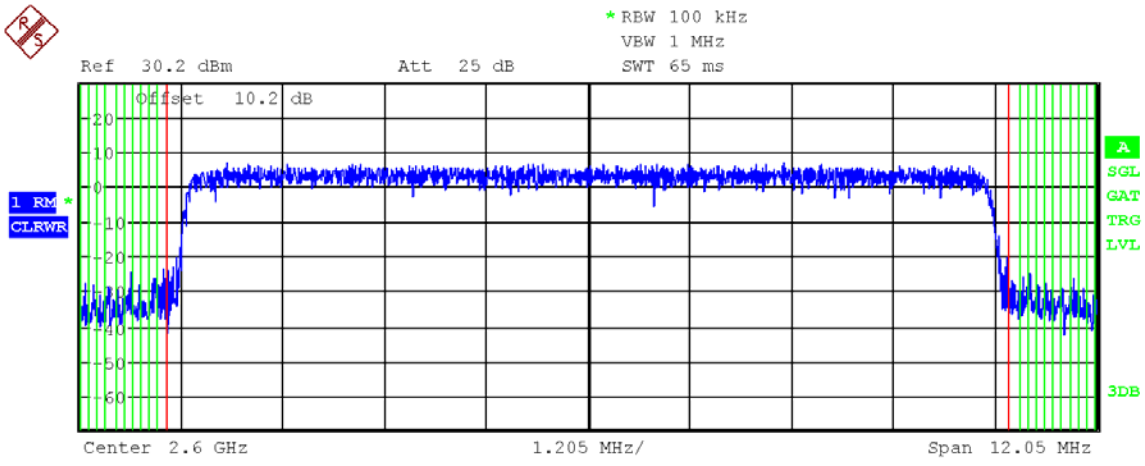


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.18 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.60 dB	-54.35 dB
Alternate	100.000 kHz	5.150 MHz	-55.18 dB	-54.90 dB
2nd Alt	100.000 kHz	5.250 MHz	-56.42 dB	-54.95 dB
3rd Alt	100.000 kHz	5.350 MHz	-54.97 dB	-55.46 dB
4th Alt	100.000 kHz	5.450 MHz	-58.01 dB	-55.88 dB
5th Alt	100.000 kHz	5.550 MHz	-56.38 dB	-55.17 dB
6th Alt	100.000 kHz	5.650 MHz	-56.30 dB	-56.34 dB
7th Alt	100.000 kHz	5.750 MHz	-56.85 dB	-56.44 dB
8th Alt	100.000 kHz	5.850 MHz	-56.07 dB	-55.75 dB
9th Alt	100.000 kHz	5.950 MHz	-57.86 dB	-57.05 dB

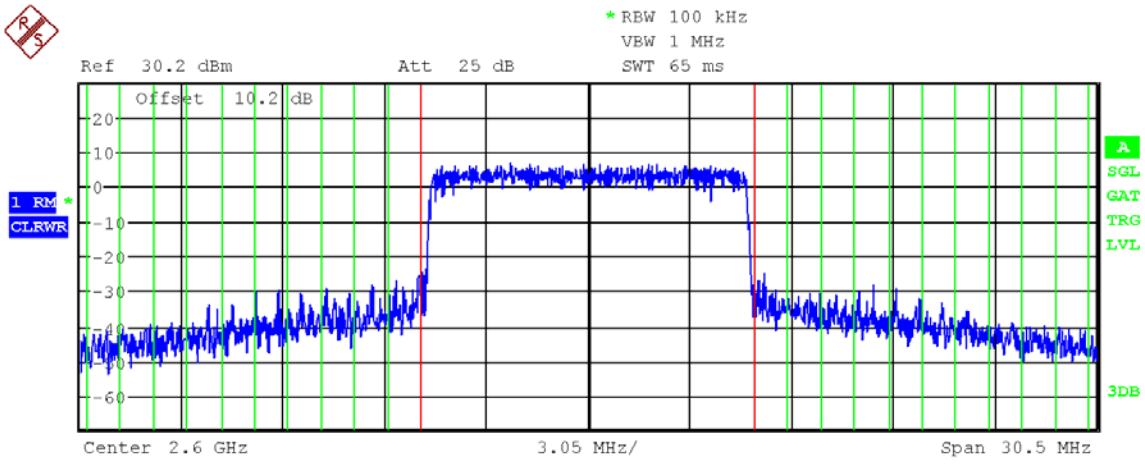


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.16 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.12 dB	-47.14 dB
Alternate	1.000 MHz	7.500 MHz	-48.24 dB	-48.32 dB
2nd Alt	1.000 MHz	8.500 MHz	-50.00 dB	-49.69 dB
3rd Alt	1.000 MHz	9.500 MHz	-50.60 dB	-49.88 dB
4th Alt	1.000 MHz	10.500 MHz	-51.97 dB	-51.01 dB
5th Alt	1.000 MHz	11.500 MHz	-53.43 dB	-51.98 dB
6th Alt	1.000 MHz	12.500 MHz	-54.68 dB	-53.42 dB
7th Alt	1.000 MHz	13.500 MHz	-55.53 dB	-54.90 dB
8th Alt	1.000 MHz	14.500 MHz	-56.69 dB	-55.04 dB

Band Edge OBW: 10MHz & Middle Frequency & AMC Zone & QPSK1/2 & Main Antenna

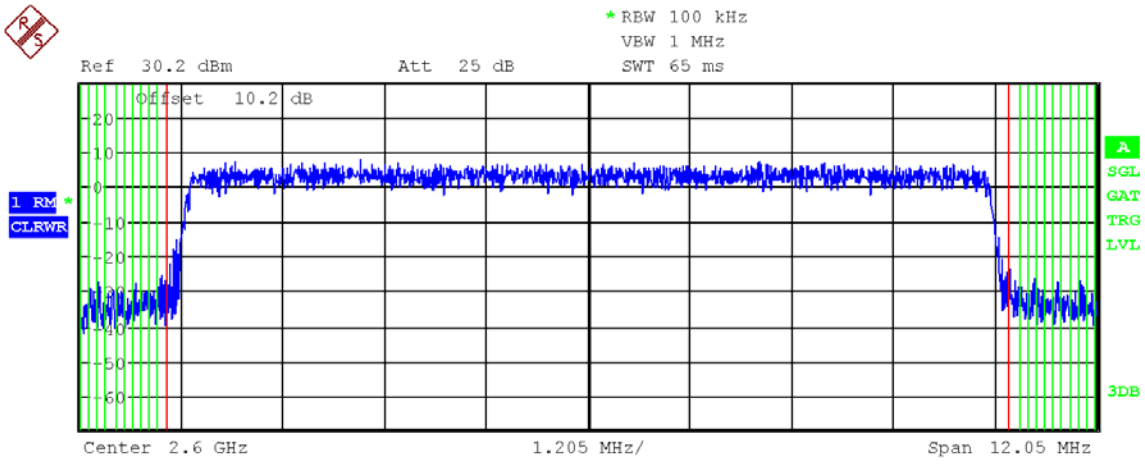


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.88 dBm	
Adjacent	100.000 kHz	5.050 MHz	-53.40 dB	-54.65 dB
Alternate	100.000 kHz	5.150 MHz	-53.47 dB	-54.19 dB
2nd Alt	100.000 kHz	5.250 MHz	-57.04 dB	-54.80 dB
3rd Alt	100.000 kHz	5.350 MHz	-56.77 dB	-56.01 dB
4th Alt	100.000 kHz	5.450 MHz	-54.33 dB	-54.57 dB
5th Alt	100.000 kHz	5.550 MHz	-56.78 dB	-56.68 dB
6th Alt	100.000 kHz	5.650 MHz	-56.71 dB	-56.88 dB
7th Alt	100.000 kHz	5.750 MHz	-58.06 dB	-55.96 dB
8th Alt	100.000 kHz	5.850 MHz	-57.61 dB	-57.20 dB
9th Alt	100.000 kHz	5.950 MHz	-56.72 dB	-57.84 dB

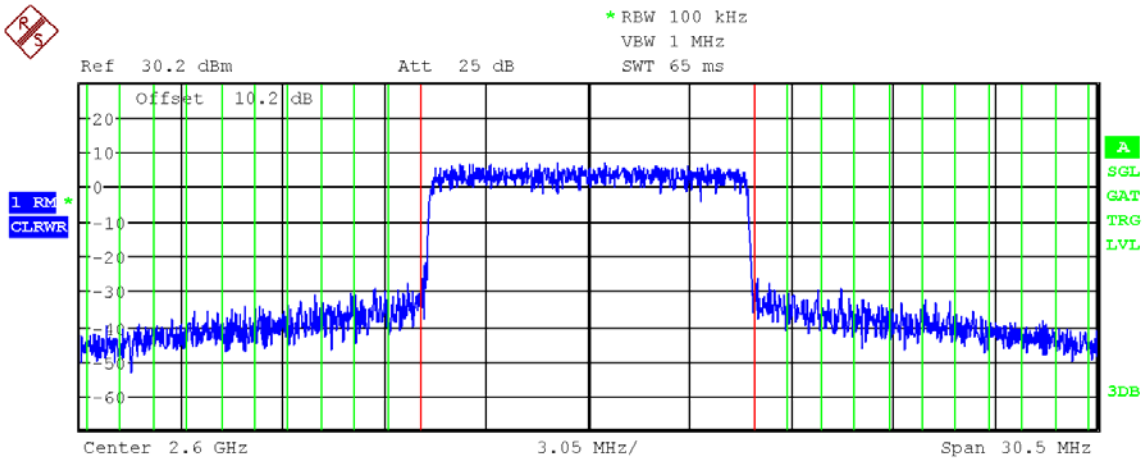


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.83 dBm	
Adjacent	1.000 MHz	6.500 MHz	-49.14 dB	-48.20 dB
Alternate	1.000 MHz	7.500 MHz	-49.90 dB	-49.75 dB
2nd Alt	1.000 MHz	8.500 MHz	-51.16 dB	-50.13 dB
3rd Alt	1.000 MHz	9.500 MHz	-51.57 dB	-50.88 dB
4th Alt	1.000 MHz	10.500 MHz	-53.15 dB	-52.85 dB
5th Alt	1.000 MHz	11.500 MHz	-54.79 dB	-53.97 dB
6th Alt	1.000 MHz	12.500 MHz	-56.77 dB	-55.83 dB
7th Alt	1.000 MHz	13.500 MHz	-57.46 dB	-57.46 dB
8th Alt	1.000 MHz	14.500 MHz	-58.99 dB	-57.93 dB

Band Edge OBW: 10MHz & Middle Frequency & AMC Zone & 16QAM1/2 & Main Antenna

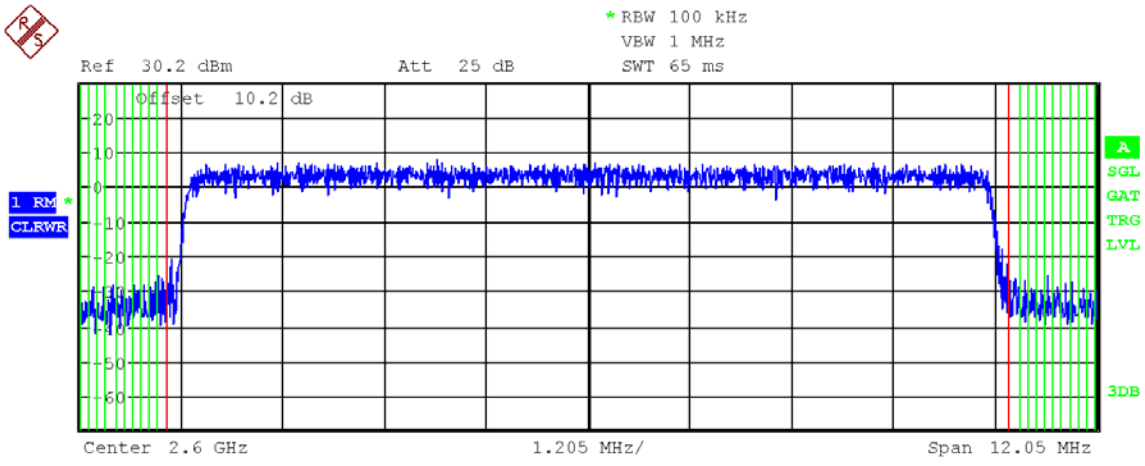


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.92 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.84 dB	-54.03 dB
Alternate	100.000 kHz	5.150 MHz	-55.61 dB	-55.89 dB
2nd Alt	100.000 kHz	5.250 MHz	-56.36 dB	-55.10 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.38 dB	-55.87 dB
4th Alt	100.000 kHz	5.450 MHz	-58.91 dB	-56.96 dB
5th Alt	100.000 kHz	5.550 MHz	-56.99 dB	-55.85 dB
6th Alt	100.000 kHz	5.650 MHz	-56.64 dB	-56.93 dB
7th Alt	100.000 kHz	5.750 MHz	-57.03 dB	-57.59 dB
8th Alt	100.000 kHz	5.850 MHz	-57.19 dB	-54.81 dB
9th Alt	100.000 kHz	5.950 MHz	-58.74 dB	-58.04 dB

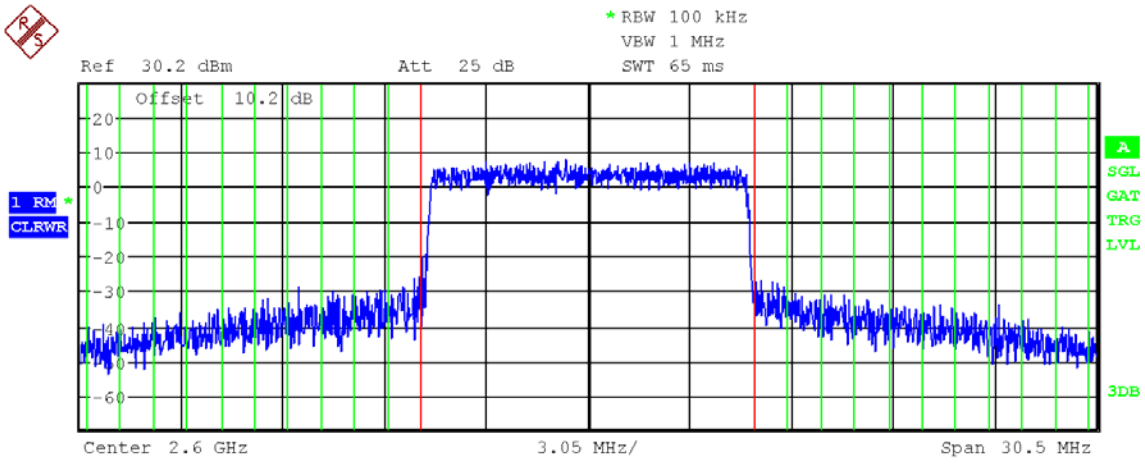


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.94 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.62 dB	-48.26 dB
Alternate	1.000 MHz	7.500 MHz	-49.70 dB	-49.72 dB
2nd Alt	1.000 MHz	8.500 MHz	-51.18 dB	-50.46 dB
3rd Alt	1.000 MHz	9.500 MHz	-52.33 dB	-52.30 dB
4th Alt	1.000 MHz	10.500 MHz	-53.46 dB	-51.99 dB
5th Alt	1.000 MHz	11.500 MHz	-54.14 dB	-53.71 dB
6th Alt	1.000 MHz	12.500 MHz	-55.94 dB	-55.20 dB
7th Alt	1.000 MHz	13.500 MHz	-56.88 dB	-56.43 dB
8th Alt	1.000 MHz	14.500 MHz	-58.44 dB	-57.56 dB

Band Edge OBW: 10MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna

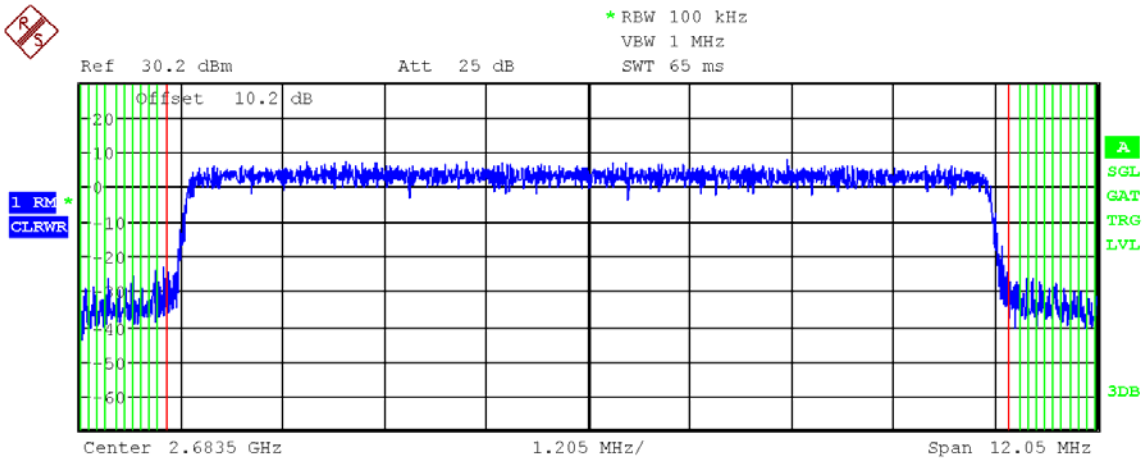


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		23.00 dBm	
Adjacent	100.000 kHz	5.050 MHz	-53.20 dB	-53.92 dB
Alternate	100.000 kHz	5.150 MHz	-55.37 dB	-55.54 dB
2nd Alt	100.000 kHz	5.250 MHz	-56.57 dB	-56.02 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.65 dB	-56.48 dB
4th Alt	100.000 kHz	5.450 MHz	-57.53 dB	-55.32 dB
5th Alt	100.000 kHz	5.550 MHz	-56.93 dB	-55.50 dB
6th Alt	100.000 kHz	5.650 MHz	-56.61 dB	-57.29 dB
7th Alt	100.000 kHz	5.750 MHz	-57.73 dB	-57.16 dB
8th Alt	100.000 kHz	5.850 MHz	-56.70 dB	-56.84 dB
9th Alt	100.000 kHz	5.950 MHz	-58.01 dB	-57.23 dB

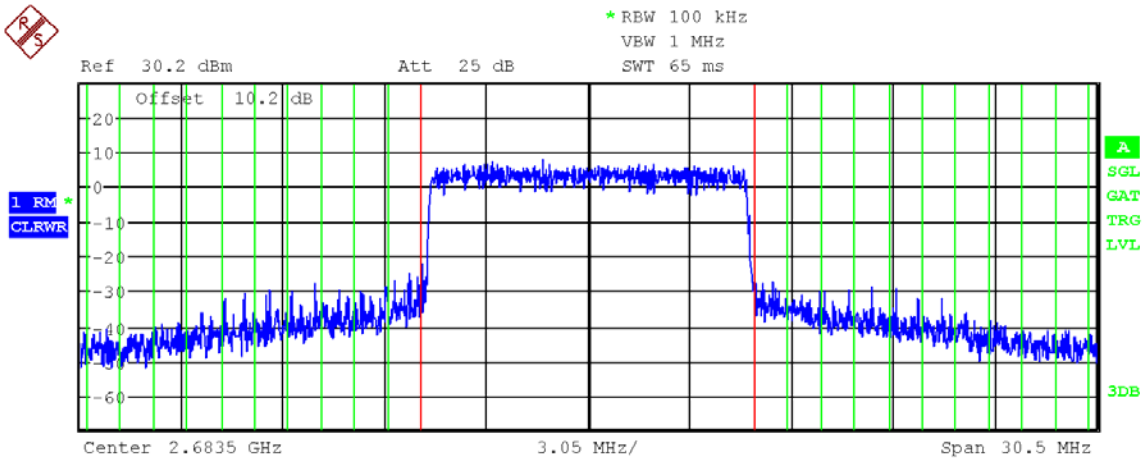


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.98 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.09 dB	-48.59 dB
Alternate	1.000 MHz	7.500 MHz	-49.46 dB	-49.50 dB
2nd Alt	1.000 MHz	8.500 MHz	-50.62 dB	-50.81 dB
3rd Alt	1.000 MHz	9.500 MHz	-51.18 dB	-51.76 dB
4th Alt	1.000 MHz	10.500 MHz	-53.00 dB	-52.87 dB
5th Alt	1.000 MHz	11.500 MHz	-54.64 dB	-54.09 dB
6th Alt	1.000 MHz	12.500 MHz	-55.80 dB	-55.09 dB
7th Alt	1.000 MHz	13.500 MHz	-57.35 dB	-57.22 dB
8th Alt	1.000 MHz	14.500 MHz	-58.27 dB	-58.66 dB

Band Edge OBW: 10MHz & Highest Frequency & AMC Zone & QPSK1/2 & Main Antenna

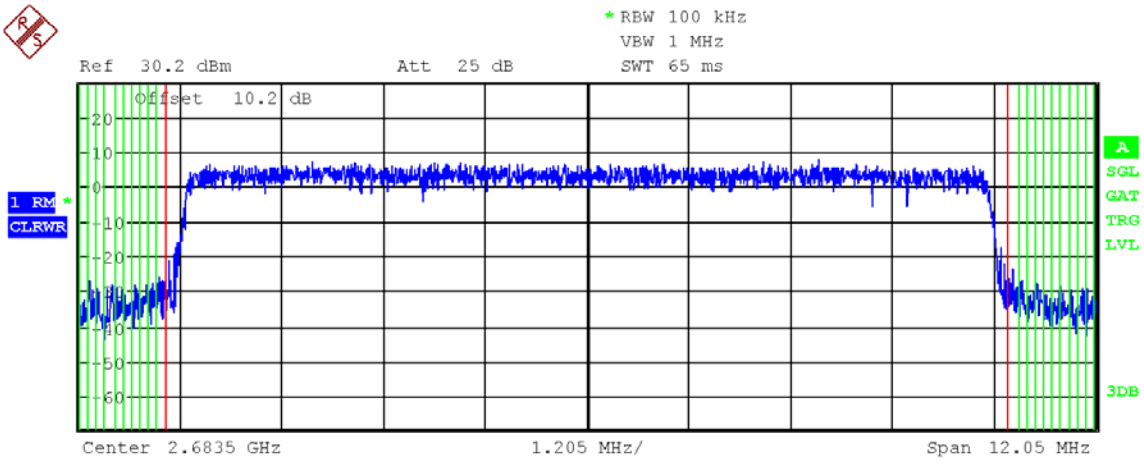


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.91 dBm	
Adjacent	100.000 kHz	5.050 MHz	-53.06 dB	-54.28 dB
Alternate	100.000 kHz	5.150 MHz	-53.05 dB	-55.54 dB
2nd Alt	100.000 kHz	5.250 MHz	-57.27 dB	-54.98 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.63 dB	-55.67 dB
4th Alt	100.000 kHz	5.450 MHz	-55.98 dB	-56.99 dB
5th Alt	100.000 kHz	5.550 MHz	-56.78 dB	-55.96 dB
6th Alt	100.000 kHz	5.650 MHz	-55.89 dB	-57.06 dB
7th Alt	100.000 kHz	5.750 MHz	-58.19 dB	-57.66 dB
8th Alt	100.000 kHz	5.850 MHz	-57.65 dB	-58.14 dB
9th Alt	100.000 kHz	5.950 MHz	-57.86 dB	-59.24 dB

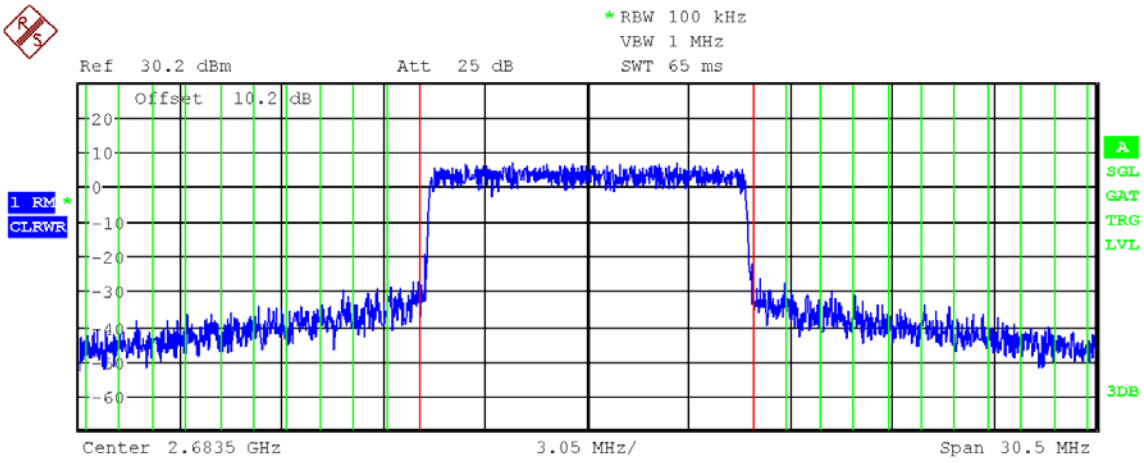


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.93 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.24 dB	-48.79 dB
Alternate	1.000 MHz	7.500 MHz	-49.78 dB	-50.10 dB
2nd Alt	1.000 MHz	8.500 MHz	-50.36 dB	-51.26 dB
3rd Alt	1.000 MHz	9.500 MHz	-52.26 dB	-51.87 dB
4th Alt	1.000 MHz	10.500 MHz	-52.70 dB	-53.22 dB
5th Alt	1.000 MHz	11.500 MHz	-55.35 dB	-54.89 dB
6th Alt	1.000 MHz	12.500 MHz	-56.95 dB	-56.94 dB
7th Alt	1.000 MHz	13.500 MHz	-58.75 dB	-58.12 dB
8th Alt	1.000 MHz	14.500 MHz	-59.29 dB	-58.95 dB

Band Edge OBW: 10MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

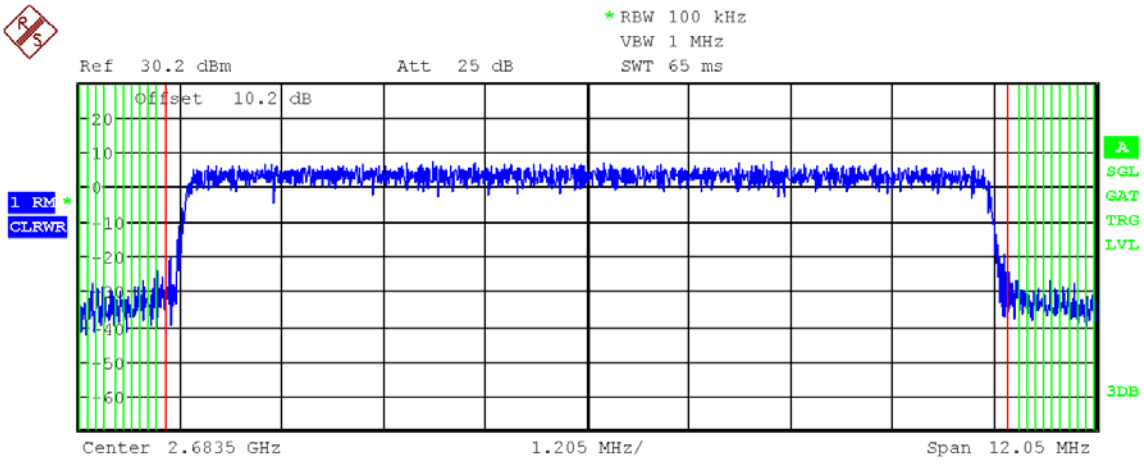


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.95 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.52 dB	-53.08 dB
Alternate	100.000 kHz	5.150 MHz	-55.38 dB	-54.84 dB
2nd Alt	100.000 kHz	5.250 MHz	-55.60 dB	-56.65 dB
3rd Alt	100.000 kHz	5.350 MHz	-55.99 dB	-55.16 dB
4th Alt	100.000 kHz	5.450 MHz	-57.57 dB	-57.39 dB
5th Alt	100.000 kHz	5.550 MHz	-56.17 dB	-55.92 dB
6th Alt	100.000 kHz	5.650 MHz	-56.98 dB	-56.90 dB
7th Alt	100.000 kHz	5.750 MHz	-58.50 dB	-57.83 dB
8th Alt	100.000 kHz	5.850 MHz	-56.14 dB	-56.64 dB
9th Alt	100.000 kHz	5.950 MHz	-58.16 dB	-56.96 dB

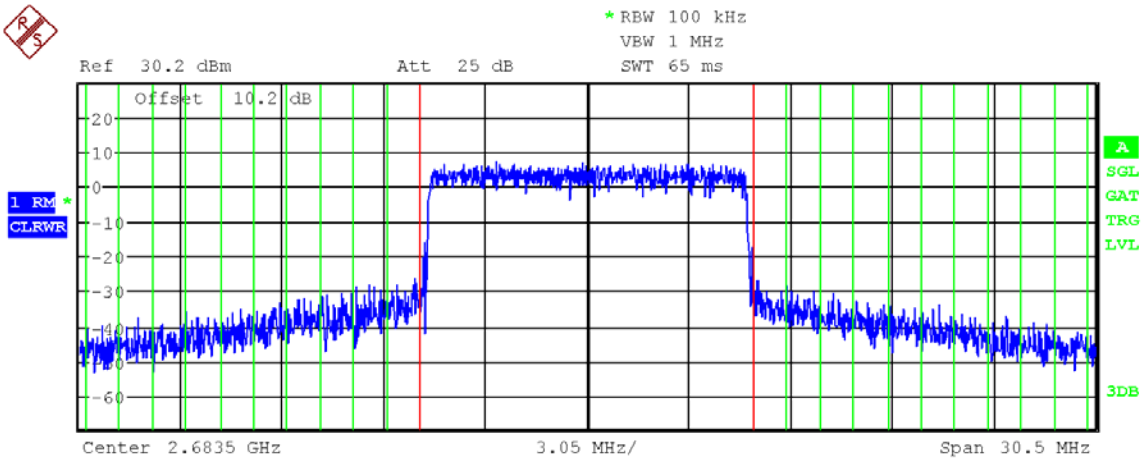


Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.94 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.97 dB	-48.46 dB
Alternate	1.000 MHz	7.500 MHz	-49.50 dB	-49.56 dB
2nd Alt	1.000 MHz	8.500 MHz	-51.48 dB	-51.19 dB
3rd Alt	1.000 MHz	9.500 MHz	-52.82 dB	-53.22 dB
4th Alt	1.000 MHz	10.500 MHz	-54.00 dB	-52.99 dB
5th Alt	1.000 MHz	11.500 MHz	-55.04 dB	-54.97 dB
6th Alt	1.000 MHz	12.500 MHz	-56.83 dB	-56.43 dB
7th Alt	1.000 MHz	13.500 MHz	-57.91 dB	-57.55 dB
8th Alt	1.000 MHz	14.500 MHz	-58.84 dB	-59.08 dB

Band Edge OBW: 10MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.93 dBm	
Adjacent	100.000 kHz	5.050 MHz	-52.36 dB	-53.14 dB
Alternate	100.000 kHz	5.150 MHz	-55.39 dB	-54.82 dB
2nd Alt	100.000 kHz	5.250 MHz	-55.68 dB	-56.74 dB
3rd Alt	100.000 kHz	5.350 MHz	-56.12 dB	-55.78 dB
4th Alt	100.000 kHz	5.450 MHz	-57.54 dB	-55.91 dB
5th Alt	100.000 kHz	5.550 MHz	-56.22 dB	-55.92 dB
6th Alt	100.000 kHz	5.650 MHz	-57.21 dB	-55.30 dB
7th Alt	100.000 kHz	5.750 MHz	-57.20 dB	-57.60 dB
8th Alt	100.000 kHz	5.850 MHz	-56.53 dB	-57.44 dB
9th Alt	100.000 kHz	5.950 MHz	-58.62 dB	-57.57 dB



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	10.000 MHz		22.93 dBm	
Adjacent	1.000 MHz	6.500 MHz	-48.36 dB	-48.52 dB
Alternate	1.000 MHz	7.500 MHz	-49.53 dB	-50.31 dB
2nd Alt	1.000 MHz	8.500 MHz	-50.80 dB	-51.55 dB
3rd Alt	1.000 MHz	9.500 MHz	-51.86 dB	-52.72 dB
4th Alt	1.000 MHz	10.500 MHz	-53.86 dB	-53.65 dB
5th Alt	1.000 MHz	11.500 MHz	-55.18 dB	-55.15 dB
6th Alt	1.000 MHz	12.500 MHz	-56.65 dB	-56.75 dB
7th Alt	1.000 MHz	13.500 MHz	-57.80 dB	-57.97 dB
8th Alt	1.000 MHz	14.500 MHz	-58.91 dB	-59.01 dB

3.2.4 Conducted Spurious Emissions

- Procedure:

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

- Measurement Data: Comply

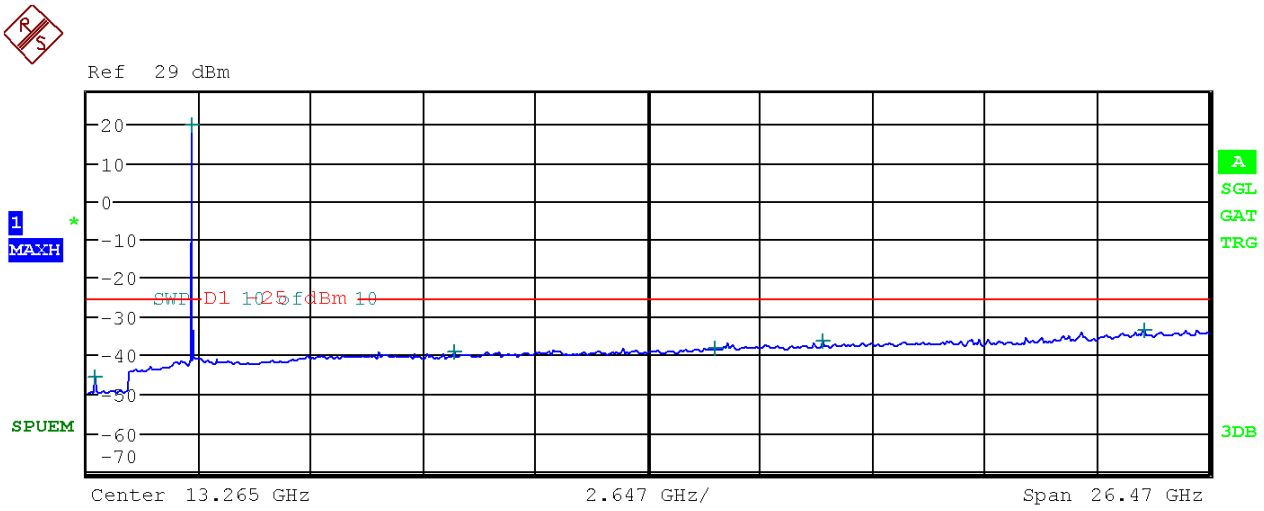
Note 1: See next pages for actual measured spectrum plots.

- **Minimum Standard:**

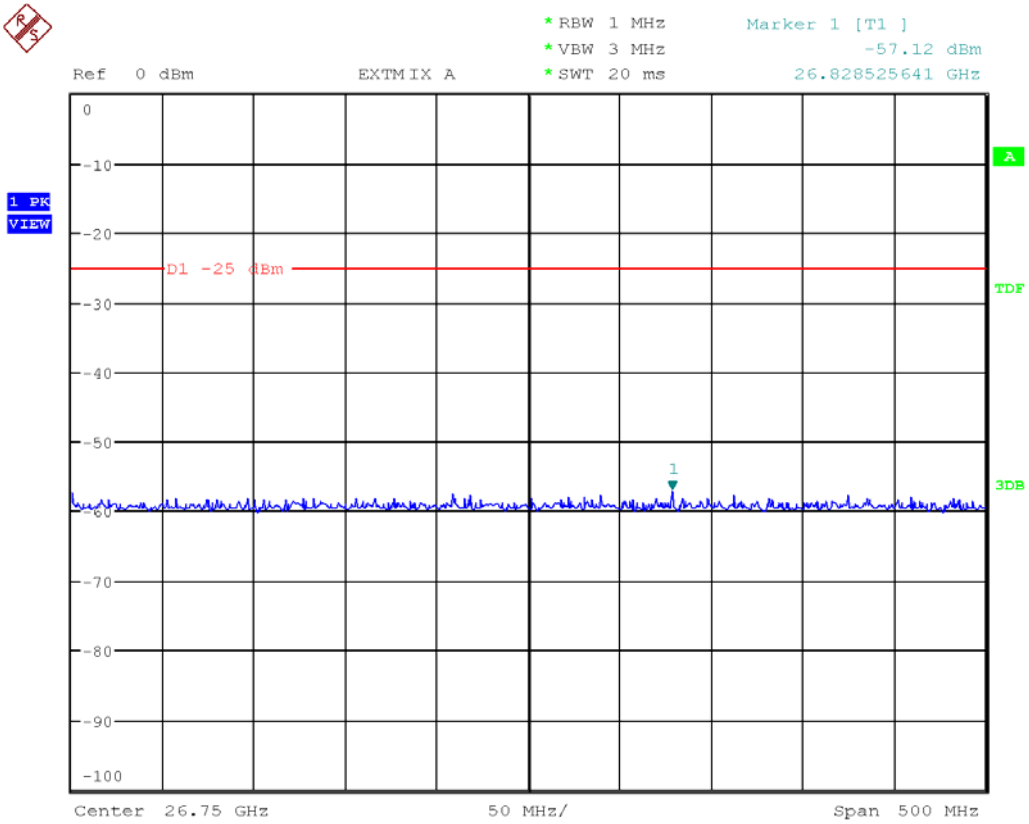
On any frequency outside a licensee`s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 55 + 10log(P) dB. The limit of emission equal to -25 dBm

Conducted Spurious Emissions

OBW: 5MHz & Lowest Frequency & AMC Zone & QPSK1/2 & Main Antenna

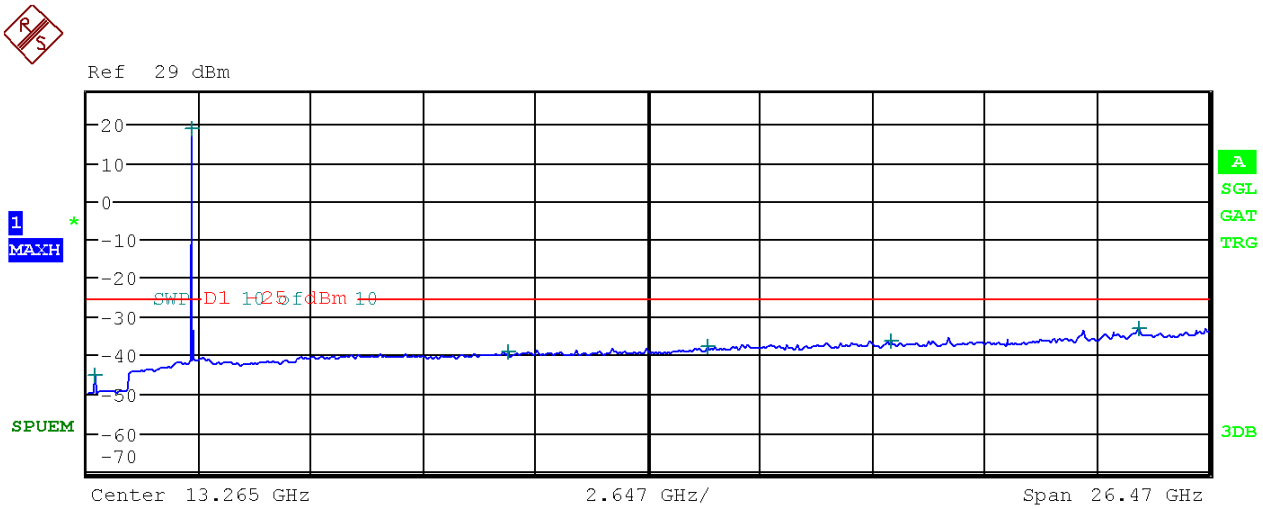


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	184.230000 M	-45.68	-200.00
1.000 G	5.000 G	1.00 M	2.500000 G	19.97	-200.00
5.000 G	10.000 G	1.00 M	8.690500 G	-39.13	-200.00
10.000 G	15.000 G	1.00 M	14.839000 G	-38.39	-200.00
15.000 G	20.000 G	1.00 M	17.367000 G	-36.26	-200.00
20.000 G	26.500 G	1.00 M	24.986800 G	-33.63	-200.00

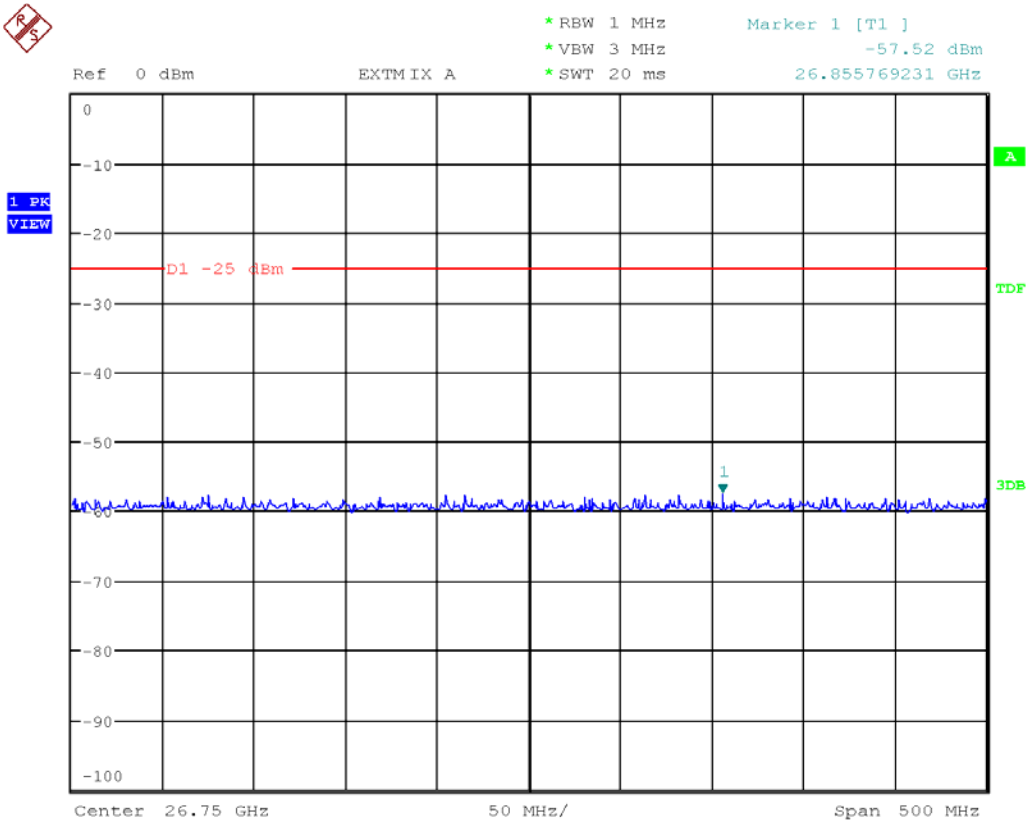


Conducted Spurious Emissions

OBW: 5MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

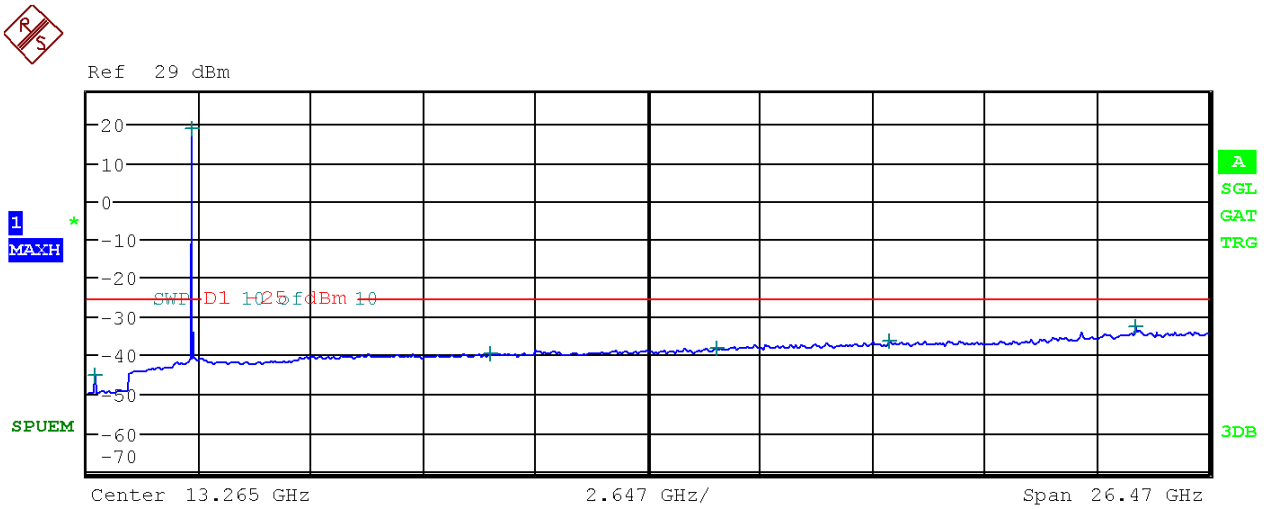


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	184.230000 M	-45.55	-200.00
1.000 G	5.000 G	1.00 M	2.500000 G	18.95	-200.00
5.000 G	10.000 G	1.00 M	9.976500 G	-39.19	-200.00
10.000 G	15.000 G	1.00 M	14.680500 G	-37.95	-200.00
15.000 G	20.000 G	1.00 M	18.990000 G	-36.30	-200.00
20.000 G	26.500 G	1.00 M	24.849000 G	-33.07	-200.00

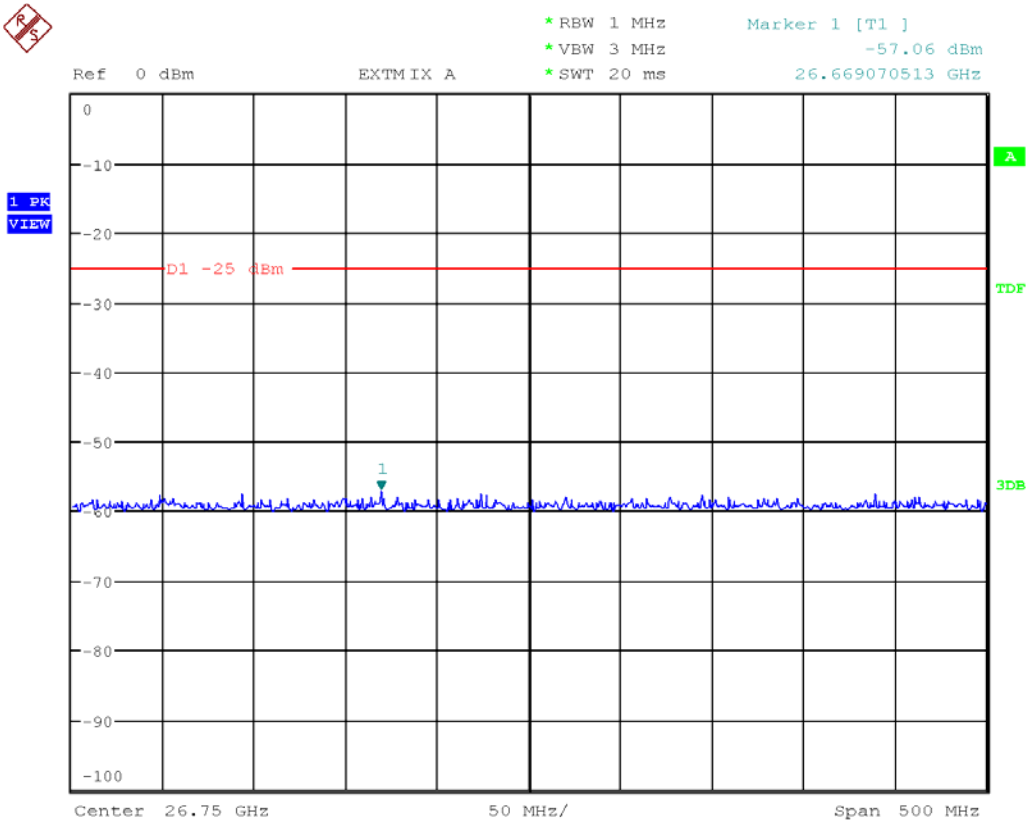


Conducted Spurious Emissions

OBW: 5MHz & Lowest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

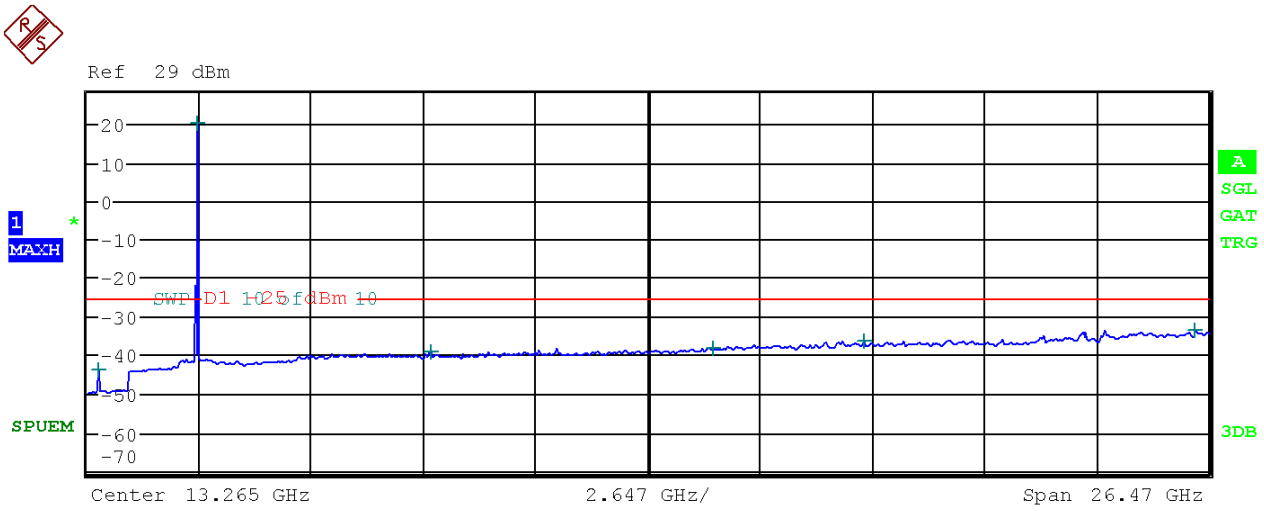


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	184.230000 M	-45.19	-200.00
1.000 G	5.000 G	1.00 M	2.498667 G	19.05	-200.00
5.000 G	10.000 G	1.00 M	9.535500 G	-39.76	-200.00
10.000 G	15.000 G	1.00 M	14.858500 G	-38.33	-200.00
15.000 G	20.000 G	1.00 M	18.944000 G	-36.60	-200.00
20.000 G	26.500 G	1.00 M	24.776200 G	-32.86	-200.00

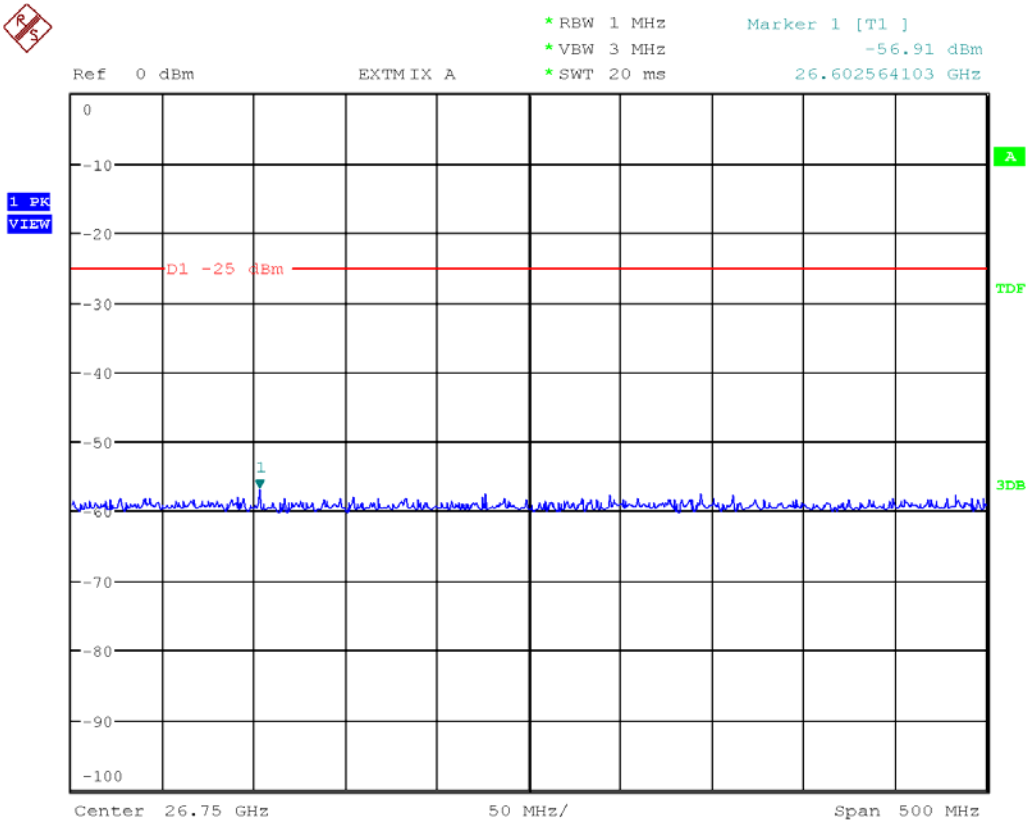


Conducted Spurious Emissions

OBW: 5MHz & Middle Frequency & AMC Zone & QPSK1/2 & Main Antenna

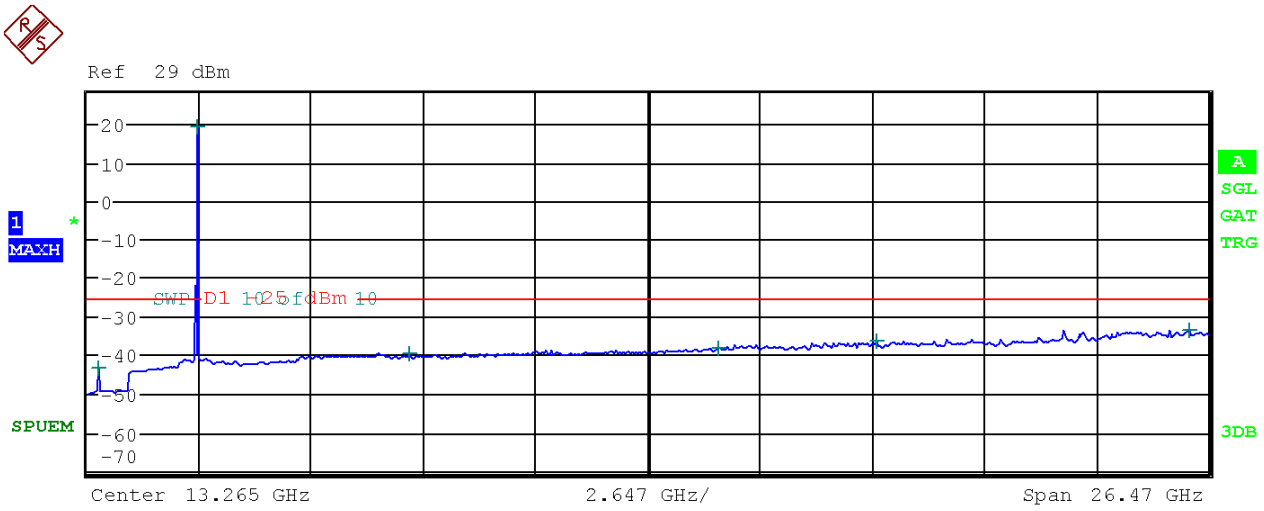


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	286.080000 M	-44.19	-200.00
1.000 G	5.000 G	1.00 M	2.601333 G	20.17	-200.00
5.000 G	10.000 G	1.00 M	8.133000 G	-39.38	-200.00
10.000 G	15.000 G	1.00 M	14.780500 G	-38.34	-200.00
15.000 G	20.000 G	1.00 M	18.372000 G	-36.51	-200.00
20.000 G	26.500 G	1.00 M	26.179550 G	-33.63	-200.00

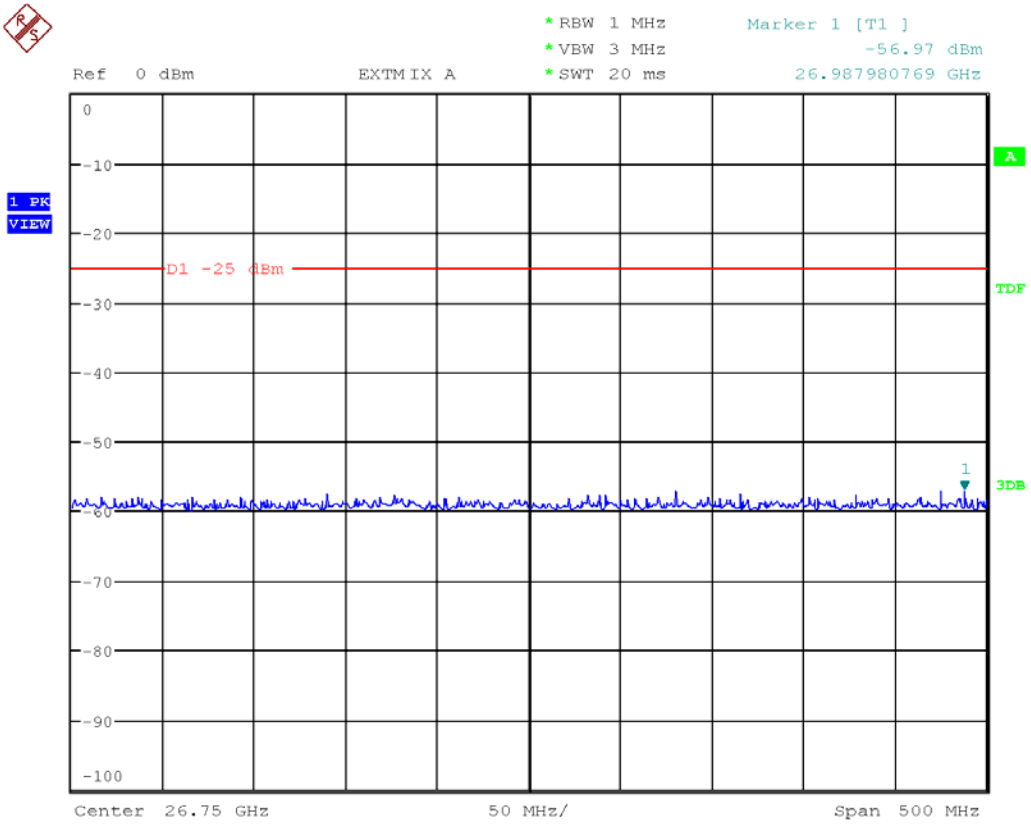


Conducted Spurious Emissions

OBW: 5MHz & Middle Frequency & AMC Zone & 16QAM1/2 & Main Antenna

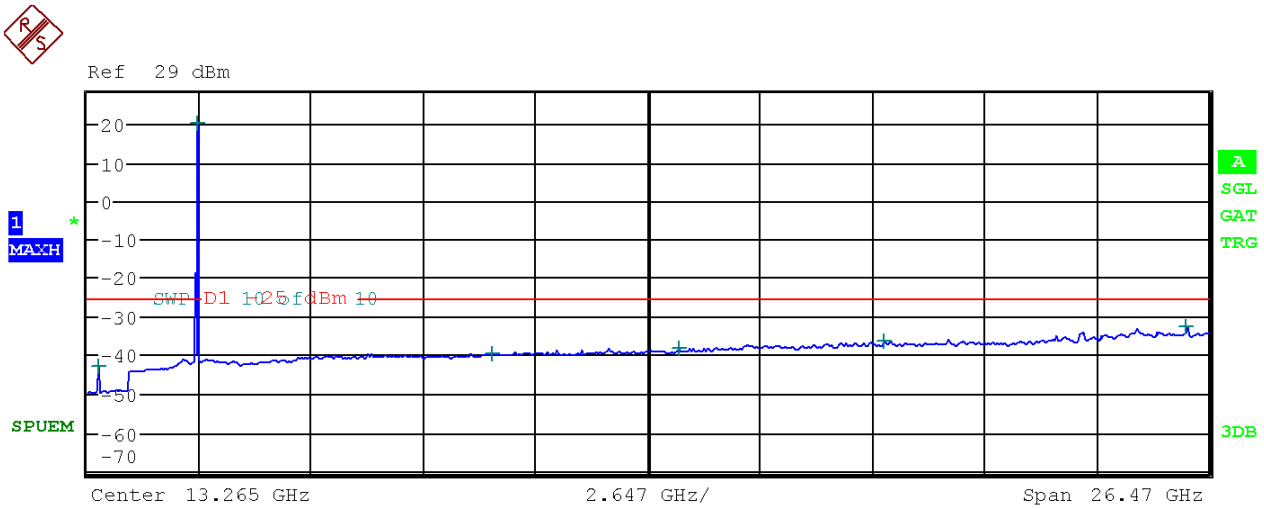


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	286.080000 M	-43.30	-200.00
1.000 G	5.000 G	1.00 M	2.598667 G	19.56	-200.00
5.000 G	10.000 G	1.00 M	7.613500 G	-39.70	-200.00
10.000 G	15.000 G	1.00 M	14.936000 G	-38.14	-200.00
15.000 G	20.000 G	1.00 M	18.657000 G	-36.46	-200.00
20.000 G	26.500 G	1.00 M	26.028750 G	-33.73	-200.00

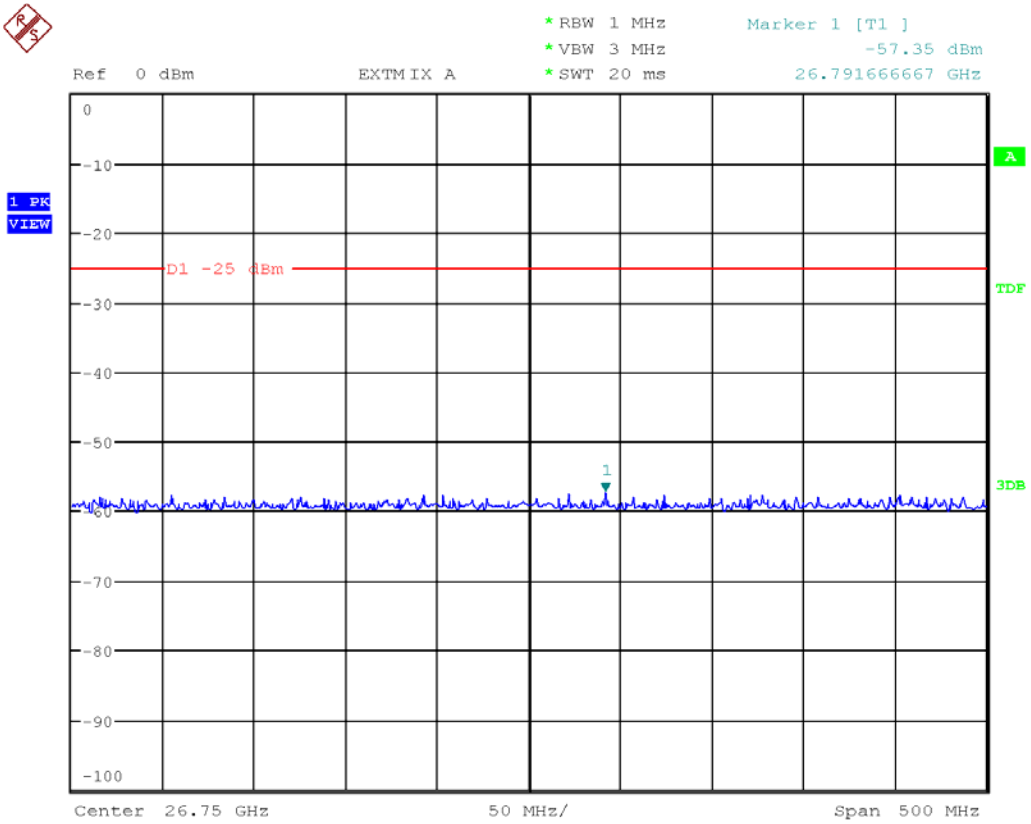


Conducted Spurious Emissions

OBW: 5MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna

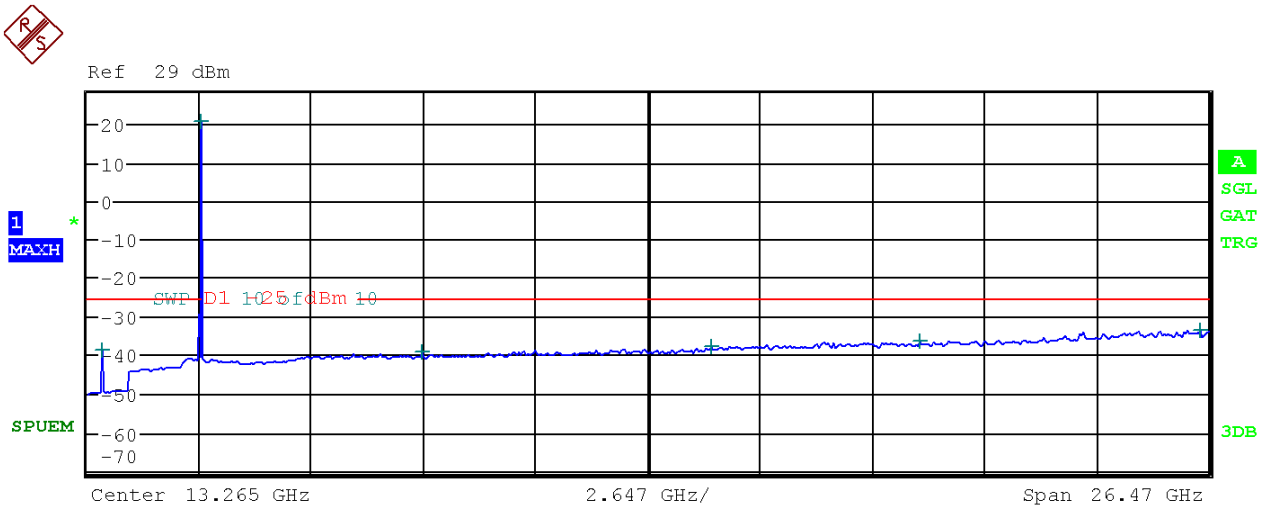


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	285.110000 M	-43.16	-200.00
1.000 G	5.000 G	1.00 M	2.600000 G	20.11	-200.00
5.000 G	10.000 G	1.00 M	9.562000 G	-39.88	-200.00
10.000 G	15.000 G	1.00 M	14.004500 G	-38.17	-200.00
15.000 G	20.000 G	1.00 M	18.832500 G	-36.59	-200.00
20.000 G	26.500 G	1.00 M	25.969600 G	-32.97	-200.00

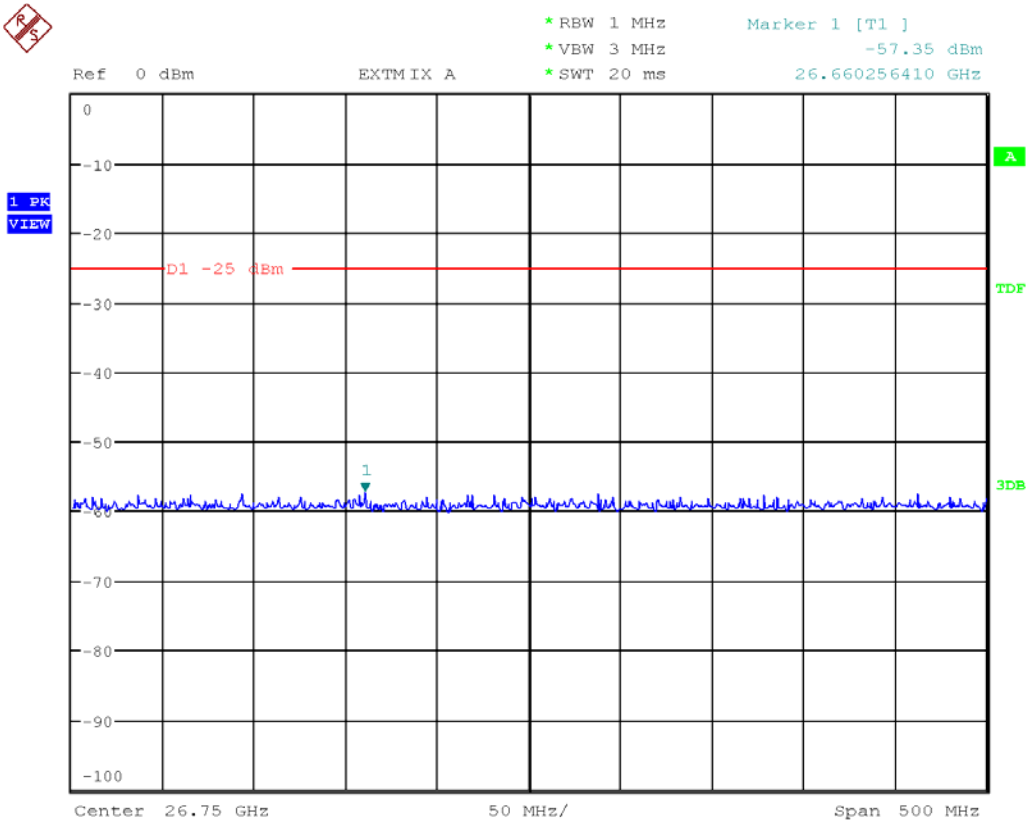


Conducted Spurious Emissions

OBW: 5MHz & Highest Frequency & AMC Zone & QPSK1/2 & Main Antenna

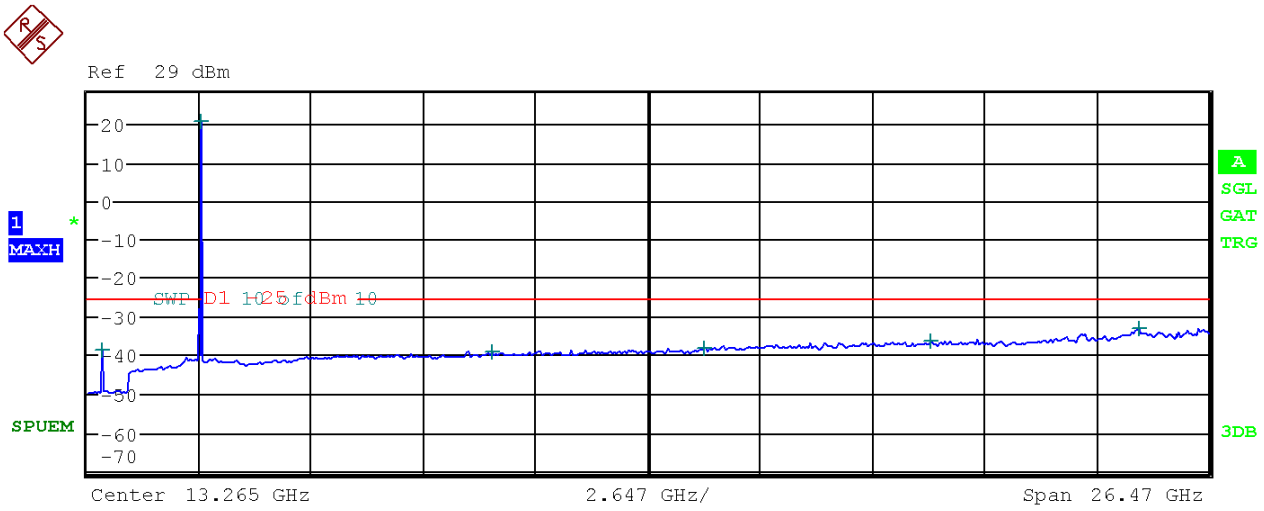


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	372.410000 M	-39.07	-200.00
1.000 G	5.000 G	1.00 M	2.688000 G	20.87	-200.00
5.000 G	10.000 G	1.00 M	7.904000 G	-39.26	-200.00
10.000 G	15.000 G	1.00 M	14.736500 G	-38.01	-200.00
15.000 G	20.000 G	1.00 M	19.671000 G	-36.65	-200.00
20.000 G	26.500 G	1.00 M	26.306300 G	-33.82	-200.00

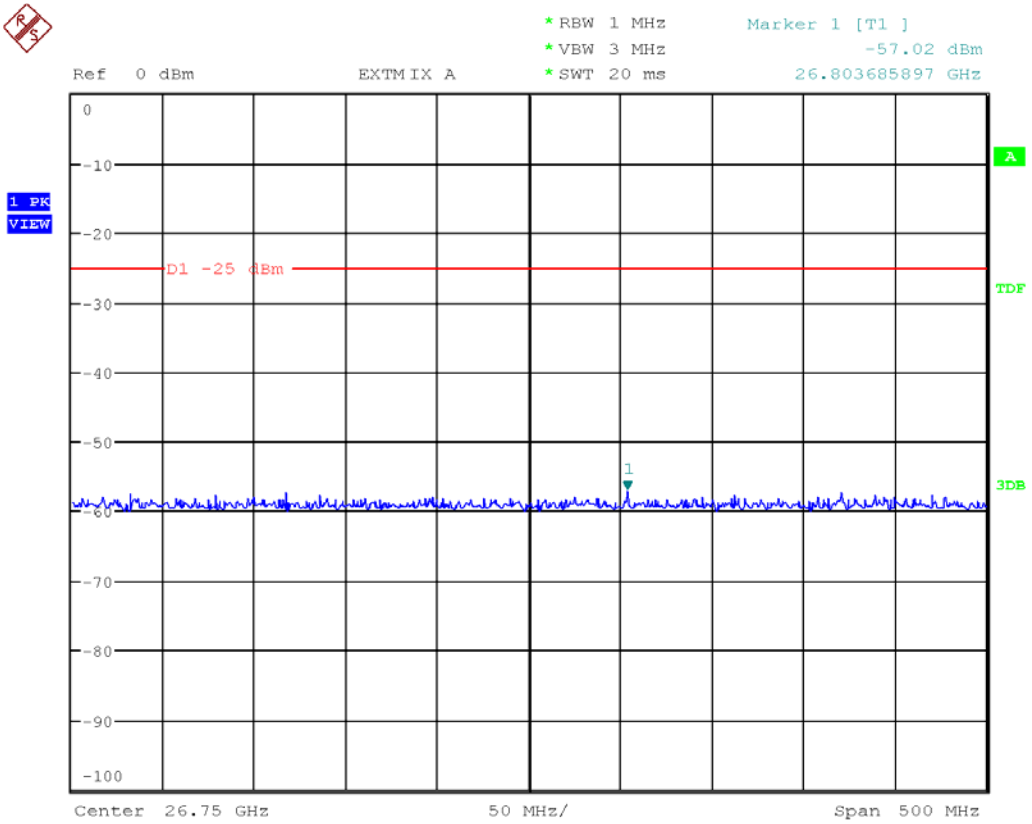


Conducted Spurious Emissions

OBW: 5MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

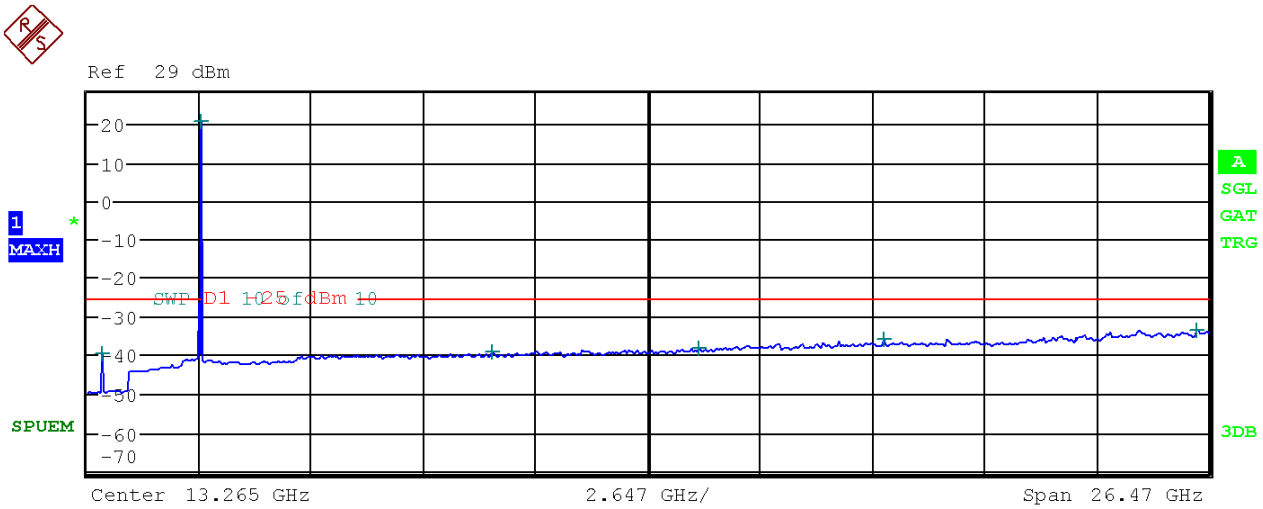


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	372.410000 M	-38.90	-200.00
1.000 G	5.000 G	1.00 M	2.688000 G	20.96	-200.00
5.000 G	10.000 G	1.00 M	9.566500 G	-39.39	-200.00
10.000 G	15.000 G	1.00 M	14.580000 G	-38.15	-200.00
15.000 G	20.000 G	1.00 M	19.914000 G	-36.71	-200.00
20.000 G	26.500 G	1.00 M	24.861350 G	-33.34	-200.00

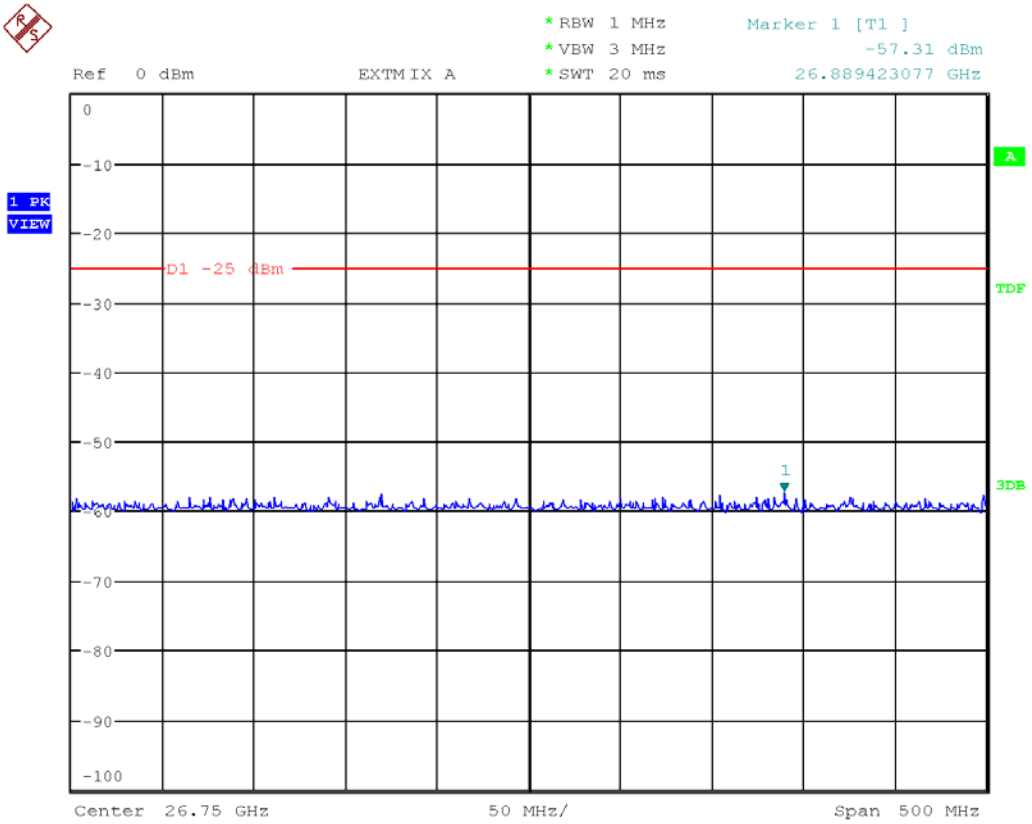


Conducted Spurious Emissions

OBW: 5MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

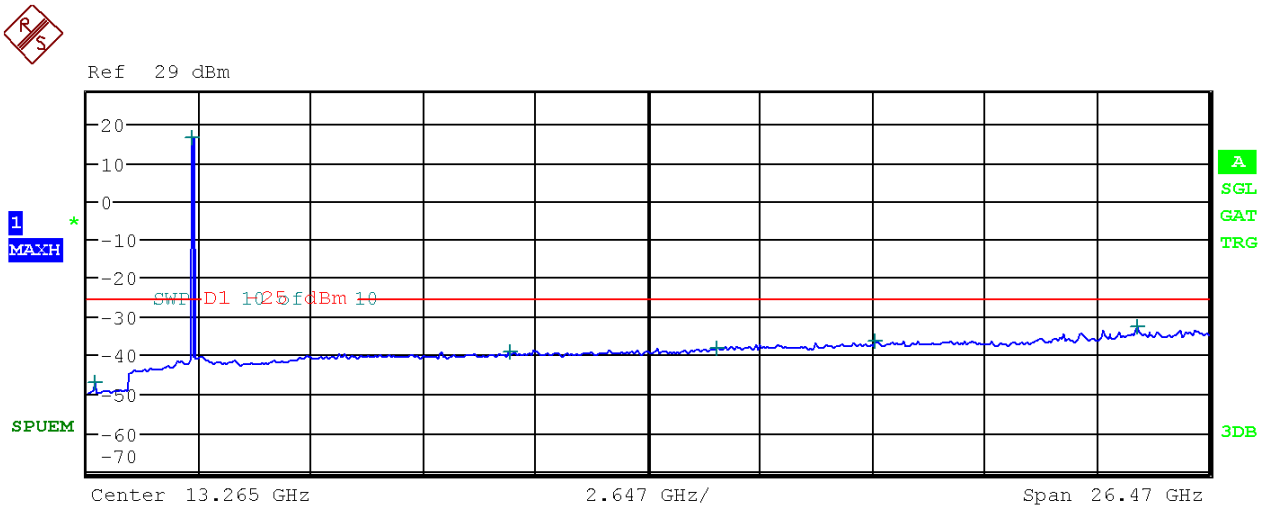


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	372.410000 M	-39.55	-200.00
1.000 G	5.000 G	1.00 M	2.686667 G	21.01	-200.00
5.000 G	10.000 G	1.00 M	9.582500 G	-39.46	-200.00
10.000 G	15.000 G	1.00 M	14.468500 G	-38.23	-200.00
15.000 G	20.000 G	1.00 M	18.804000 G	-36.09	-200.00
20.000 G	26.500 G	1.00 M	26.204250 G	-33.77	-200.00

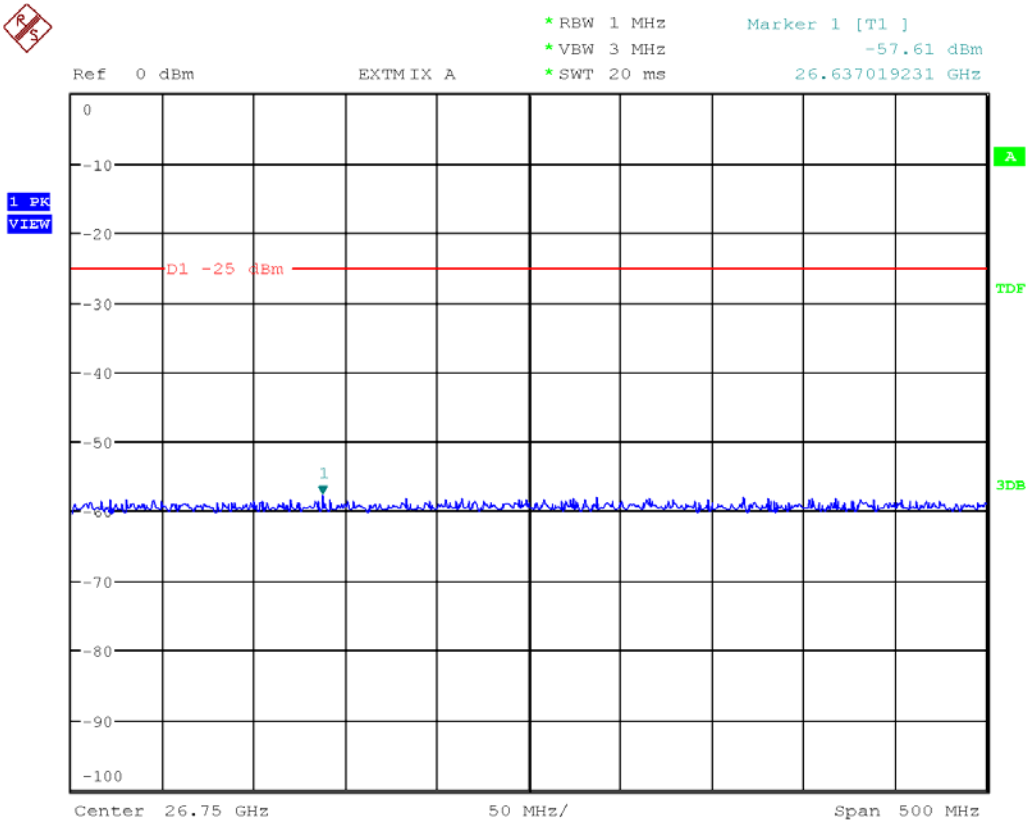


Conducted Spurious Emissions

OBW: 10MHz & Lowest Frequency & AMC Zone & QPSK1/2 & Main Antenna

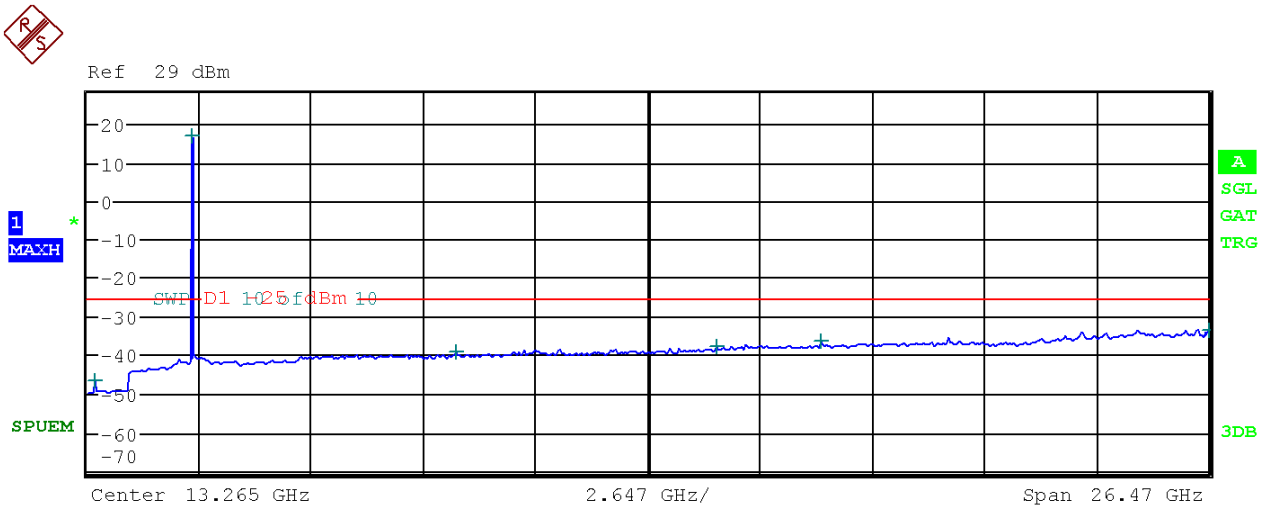


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	193.930000 M	-47.25	-200.00
1.000 G	5.000 G	1.00 M	2.506667 G	16.62	-200.00
5.000 G	10.000 G	1.00 M	9.987500 G	-39.43	-200.00
10.000 G	15.000 G	1.00 M	14.894000 G	-38.51	-200.00
15.000 G	20.000 G	1.00 M	18.614000 G	-36.46	-200.00
20.000 G	26.500 G	1.00 M	24.803500 G	-32.78	-200.00

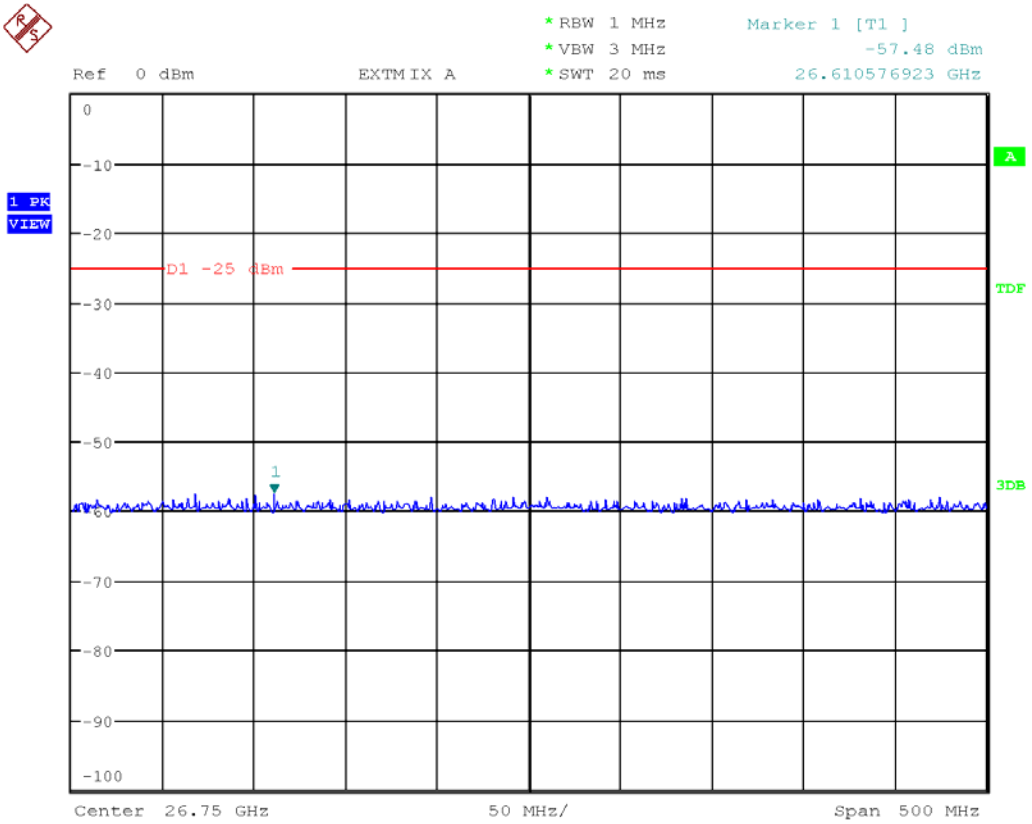


Conducted Spurious Emissions

OBW: 10MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

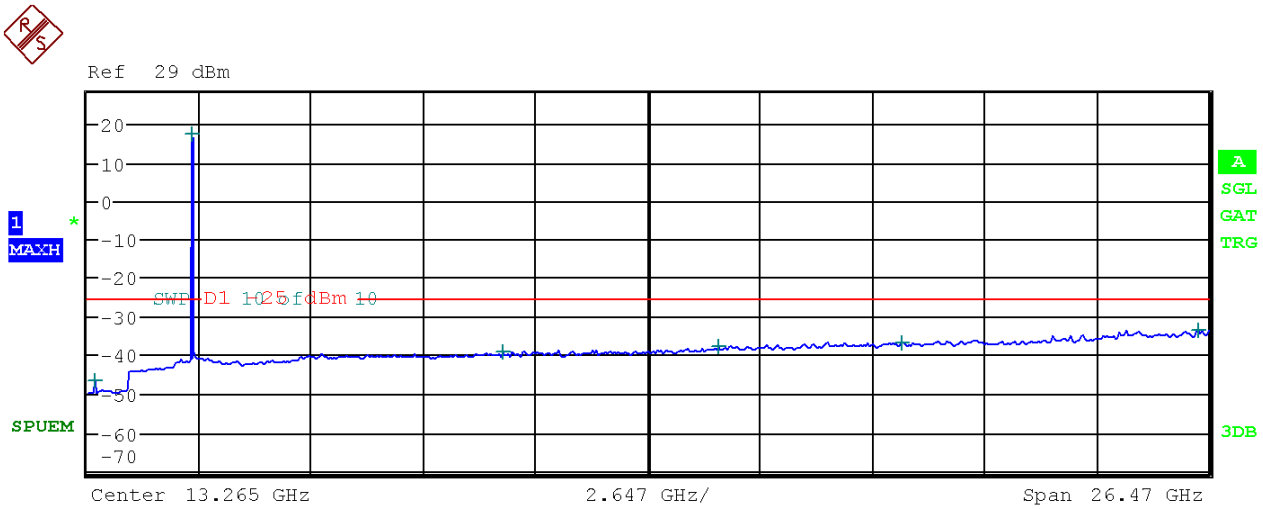


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	193.930000 M	-46.88	-200.00
1.000 G	5.000 G	1.00 M	2.508000 G	16.87	-200.00
5.000 G	10.000 G	1.00 M	8.737500 G	-39.42	-200.00
10.000 G	15.000 G	1.00 M	14.862500 G	-37.99	-200.00
15.000 G	20.000 G	1.00 M	17.329000 G	-36.63	-200.00
20.000 G	26.500 G	1.00 M	26.479850 G	-33.48	-200.00

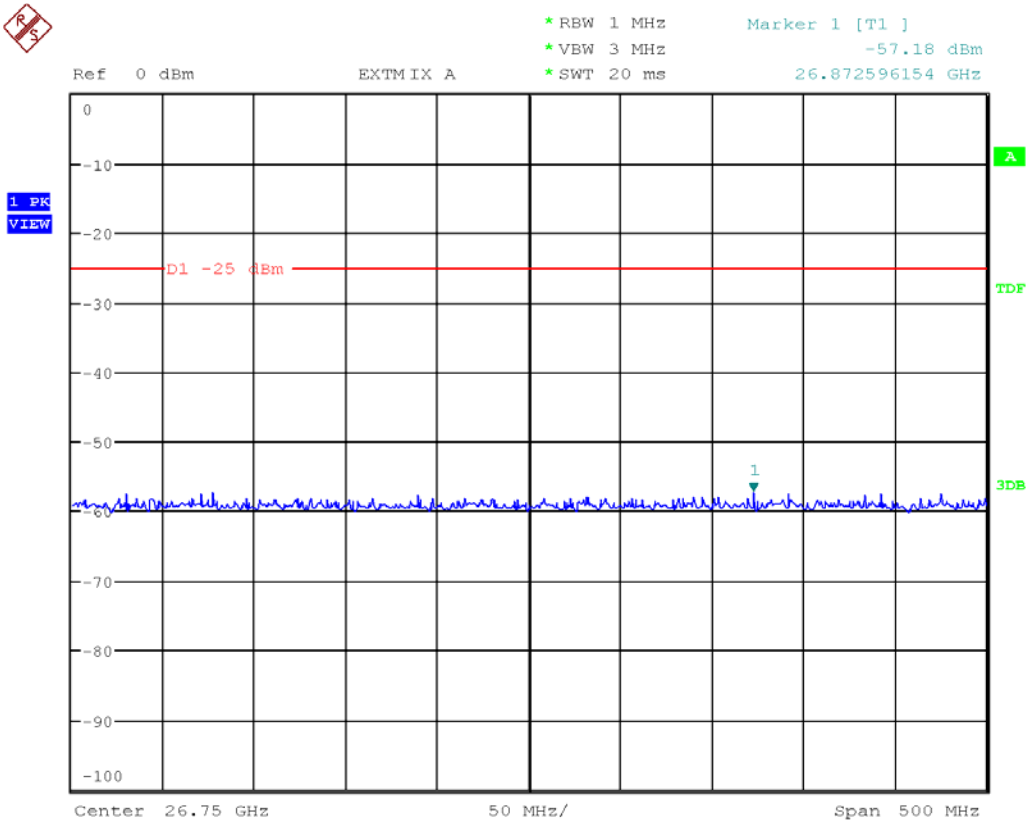


Conducted Spurious Emissions

OBW: 10MHz & Lowest Frequency & AMC Zone & 64QAM2/3 & Main Antenna

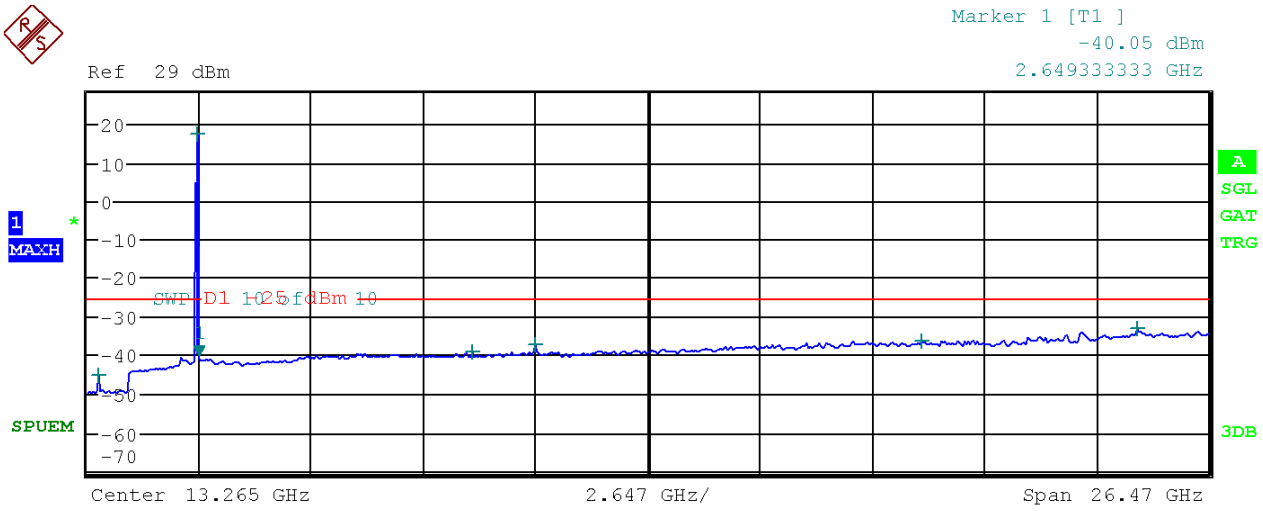


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	193.930000 M	-46.97	-200.00
1.000 G	5.000 G	1.00 M	2.508000 G	17.59	-200.00
5.000 G	10.000 G	1.00 M	9.836000 G	-39.40	-200.00
10.000 G	15.000 G	1.00 M	14.930000 G	-38.01	-200.00
15.000 G	20.000 G	1.00 M	19.250000 G	-36.78	-200.00
20.000 G	26.500 G	1.00 M	26.263400 G	-33.51	-200.00

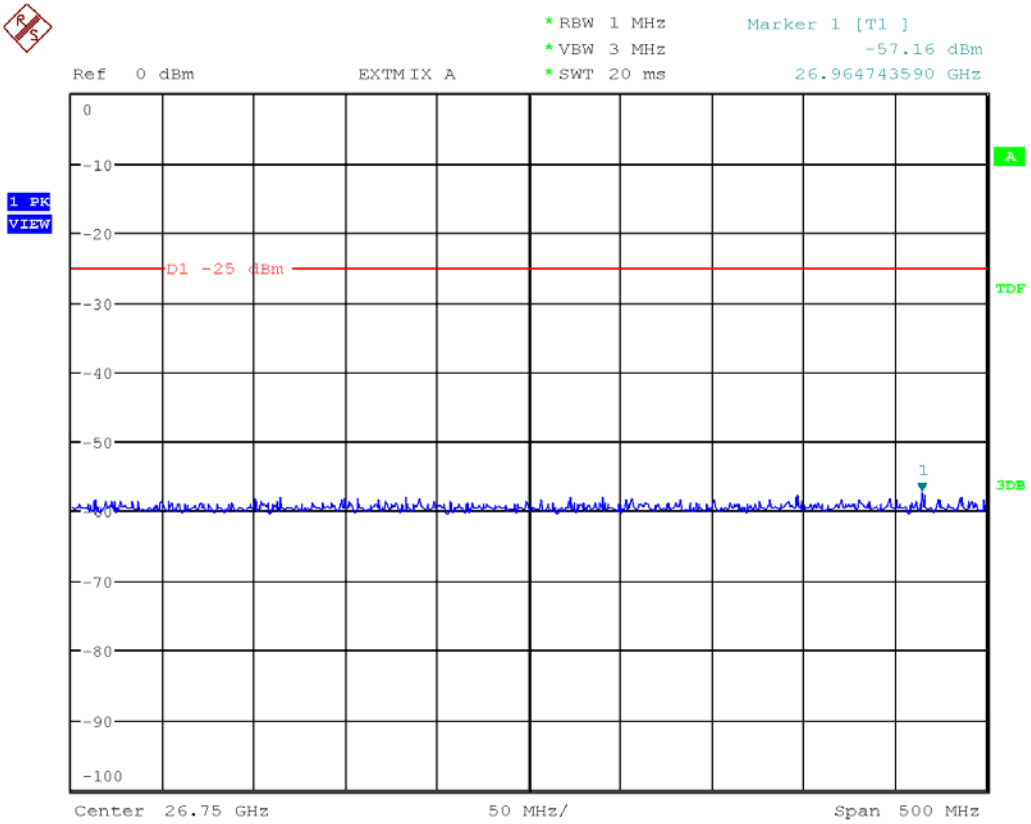


Conducted Spurious Emissions

OBW: 10MHz & Middle Frequency & AMC Zone & QPSK1/2 & Main Antenna

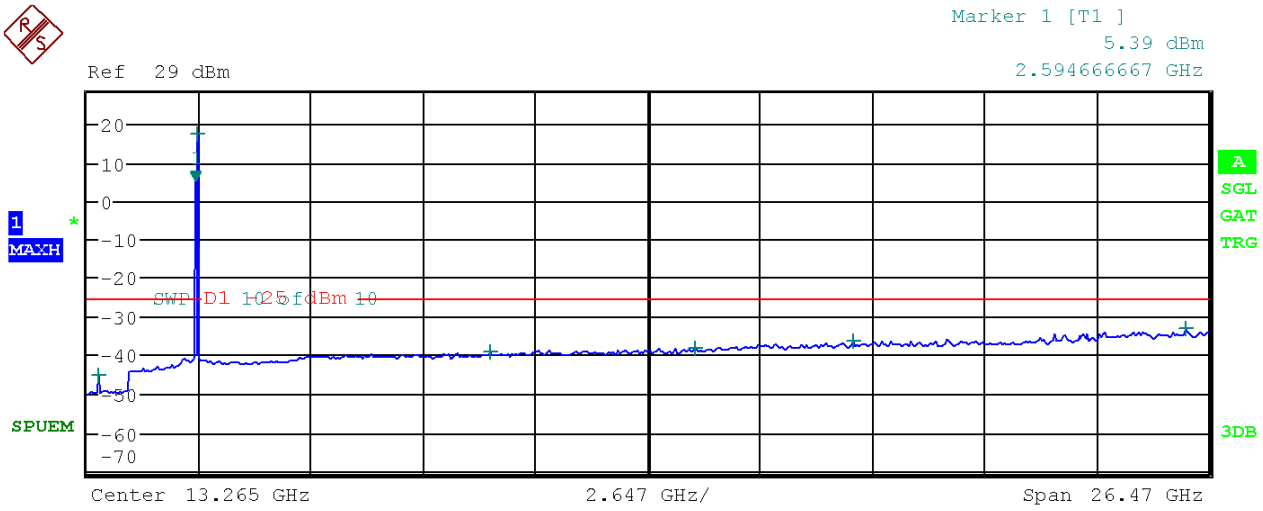


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	285.110000 M	-45.20	-200.00
1.000 G	5.000 G	1.00 M	2.598667 G	17.49	-200.00
5.000 G	10.000 G	1.00 M	9.126500 G	-39.39	-200.00
10.000 G	15.000 G	1.00 M	10.612500 G	-37.65	-200.00
15.000 G	20.000 G	1.00 M	19.701500 G	-36.38	-200.00
20.000 G	26.500 G	1.00 M	24.782700 G	-33.22	-200.00

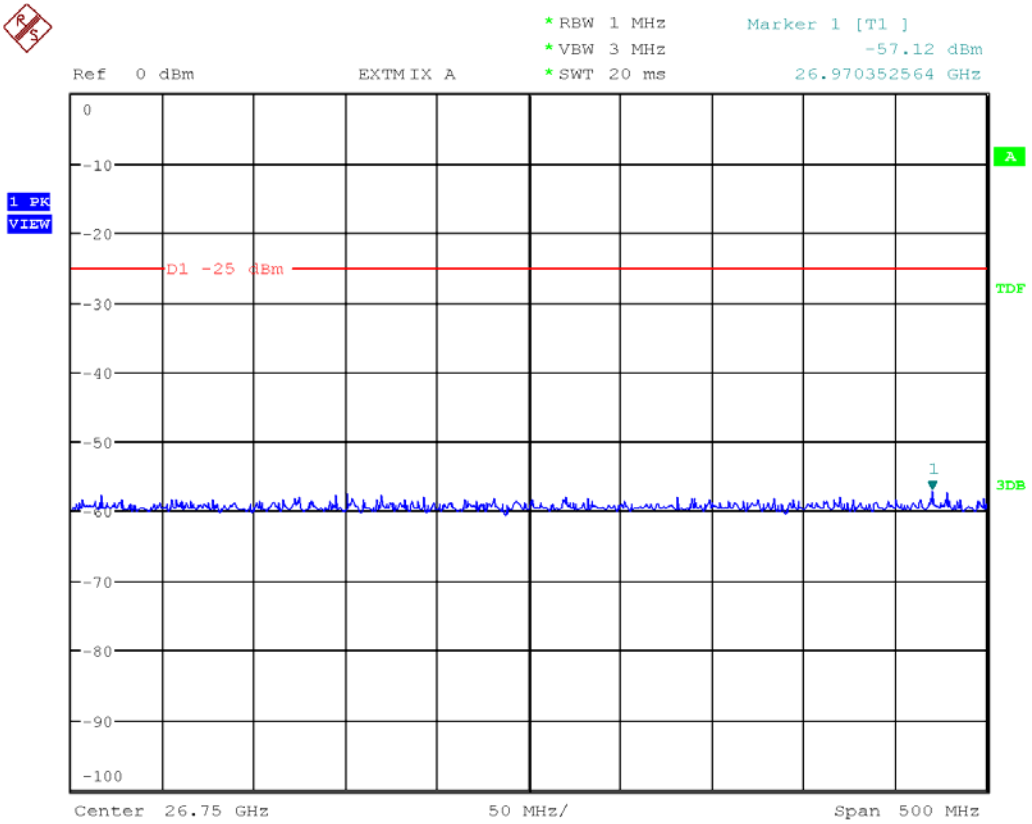


Conducted Spurious Emissions

OBW: 10MHz & Middle Frequency & AMC Zone & 16QAM1/2 & Main Antenna

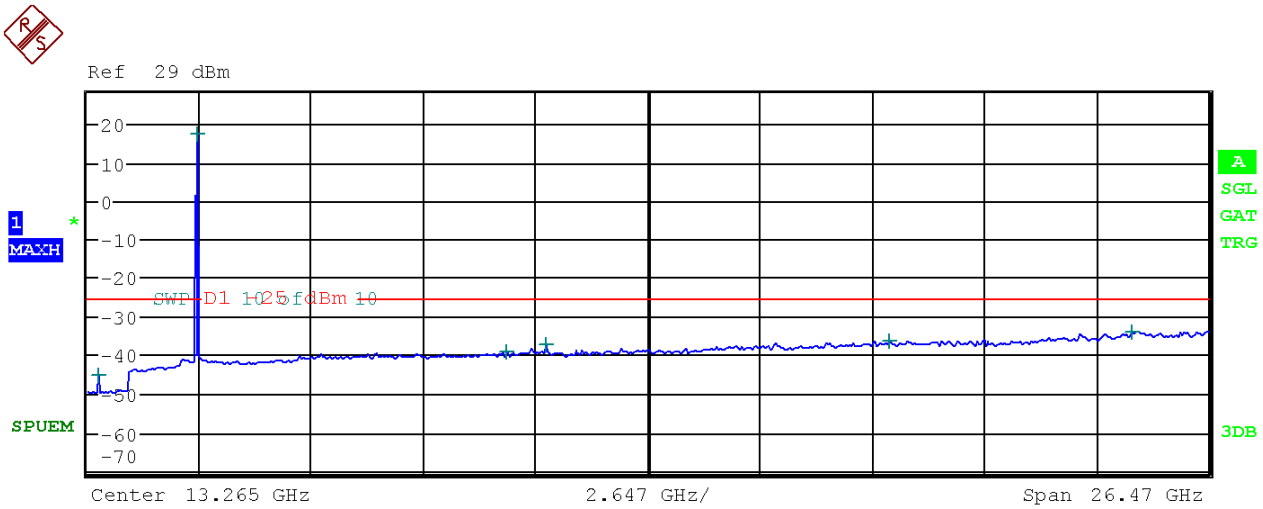


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	286.080000 M	-45.57	-200.00
1.000 G	5.000 G	1.00 M	2.602667 G	17.57	-200.00
5.000 G	10.000 G	1.00 M	9.521500 G	-39.34	-200.00
10.000 G	15.000 G	1.00 M	14.377000 G	-38.22	-200.00
15.000 G	20.000 G	1.00 M	18.096500 G	-36.43	-200.00
20.000 G	26.500 G	1.00 M	25.950750 G	-33.41	-200.00

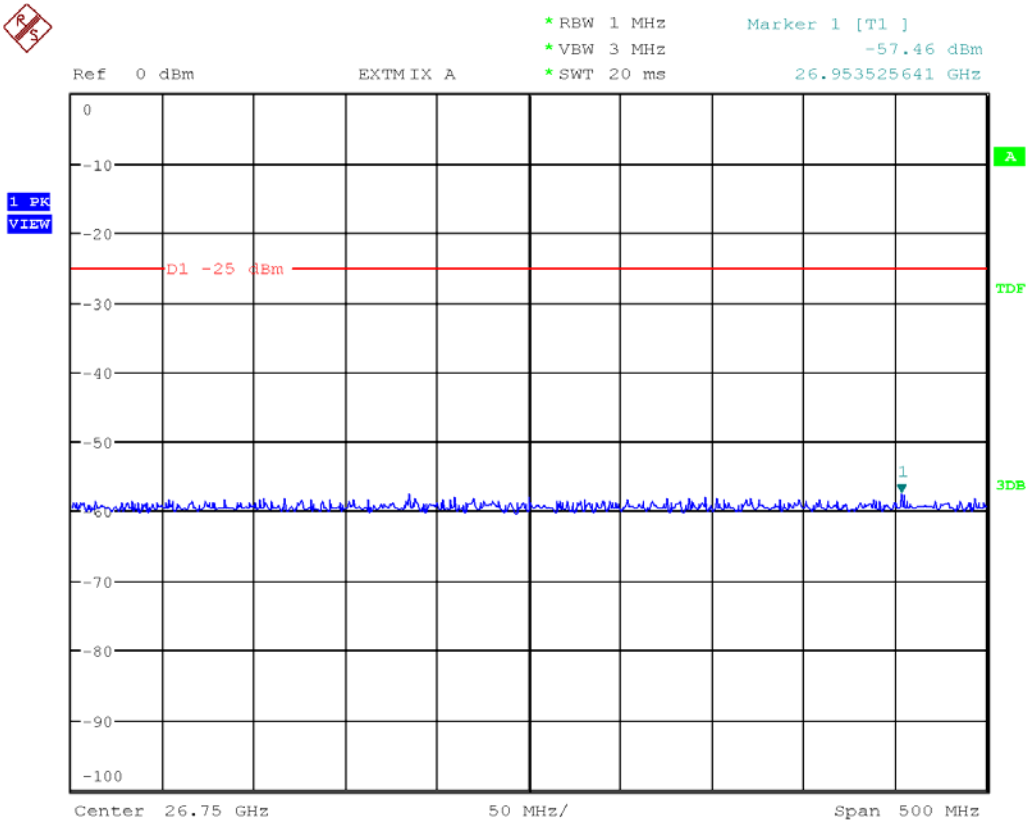


Conducted Spurious Emissions

OBW: 10MHz & Middle Frequency & AMC Zone & 64QAM2/3 & Main Antenna

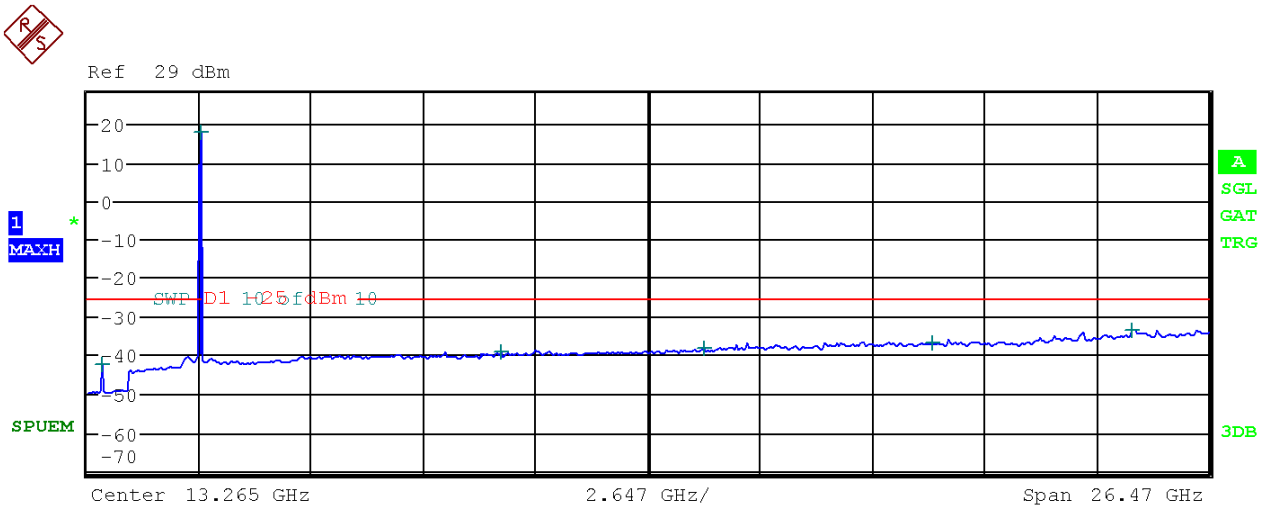


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	286.080000 M	-45.39	-200.00
1.000 G	5.000 G	1.00 M	2.598667 G	17.45	-200.00
5.000 G	10.000 G	1.00 M	9.921500 G	-39.35	-200.00
10.000 G	15.000 G	1.00 M	10.842000 G	-37.50	-200.00
15.000 G	20.000 G	1.00 M	18.938000 G	-36.41	-200.00
20.000 G	26.500 G	1.00 M	24.682600 G	-34.00	-200.00

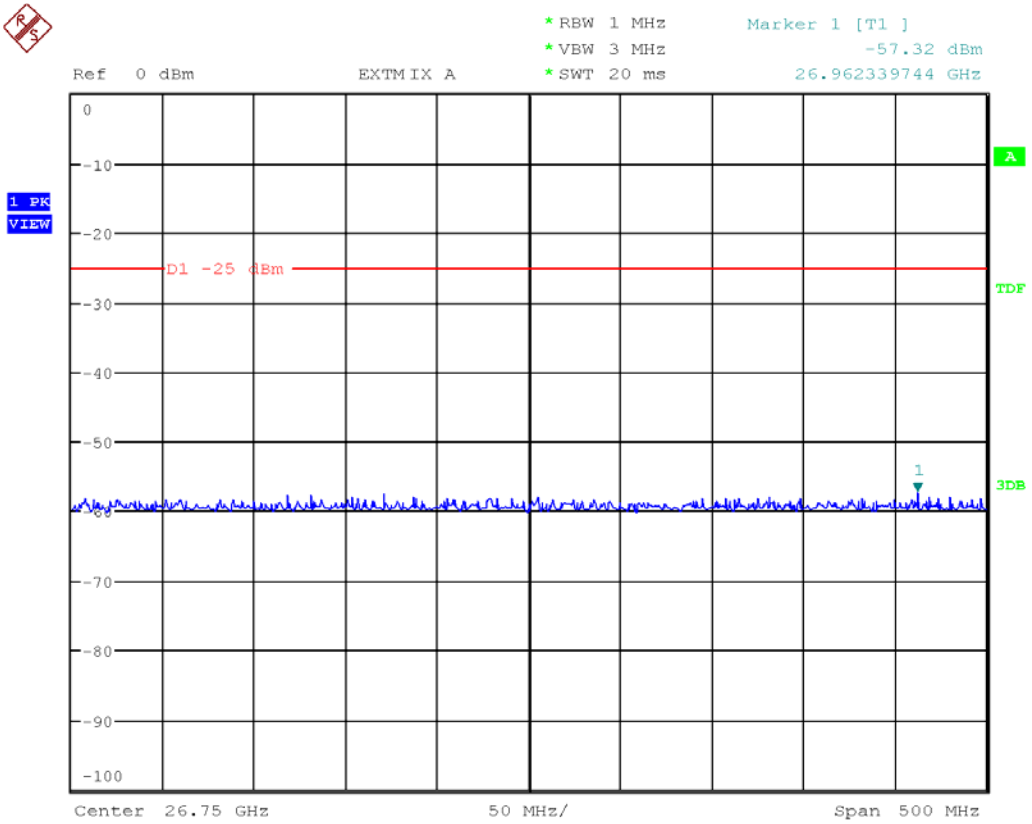


Conducted Spurious Emissions

OBW: 10MHz & Highest Frequency & AMC Zone & QPSK1/2 & Main Antenna

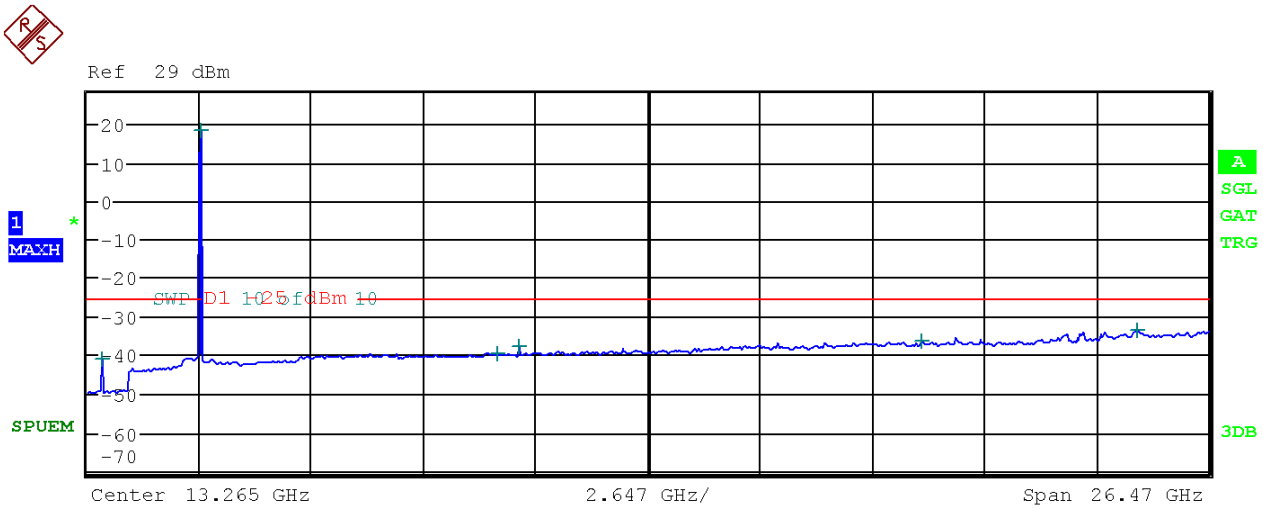


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	369.500000 M	-42.44	-200.00
1.000 G	5.000 G	1.00 M	2.681333 G	18.00	-200.00
5.000 G	10.000 G	1.00 M	9.775000 G	-39.43	-200.00
10.000 G	15.000 G	1.00 M	14.594000 G	-38.31	-200.00
15.000 G	20.000 G	1.00 M	19.978000 G	-36.77	-200.00
20.000 G	26.500 G	1.00 M	24.665050 G	-33.61	-200.00

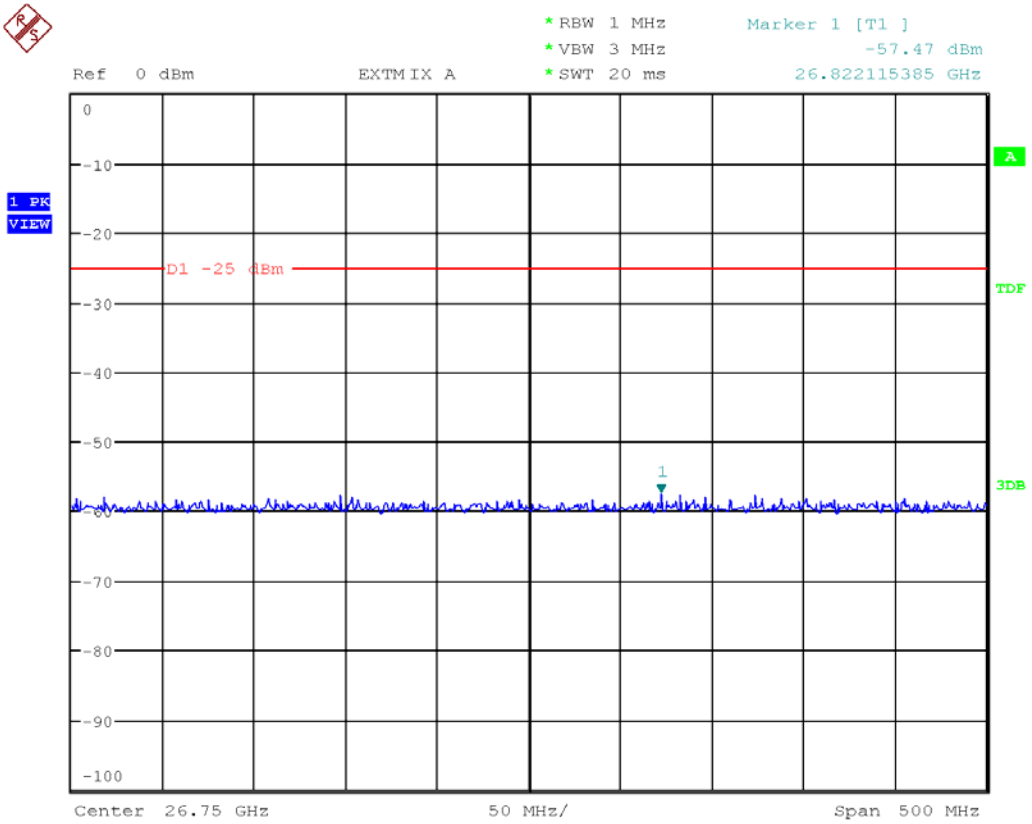


Conducted Spurious Emissions

OBW: 10MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna

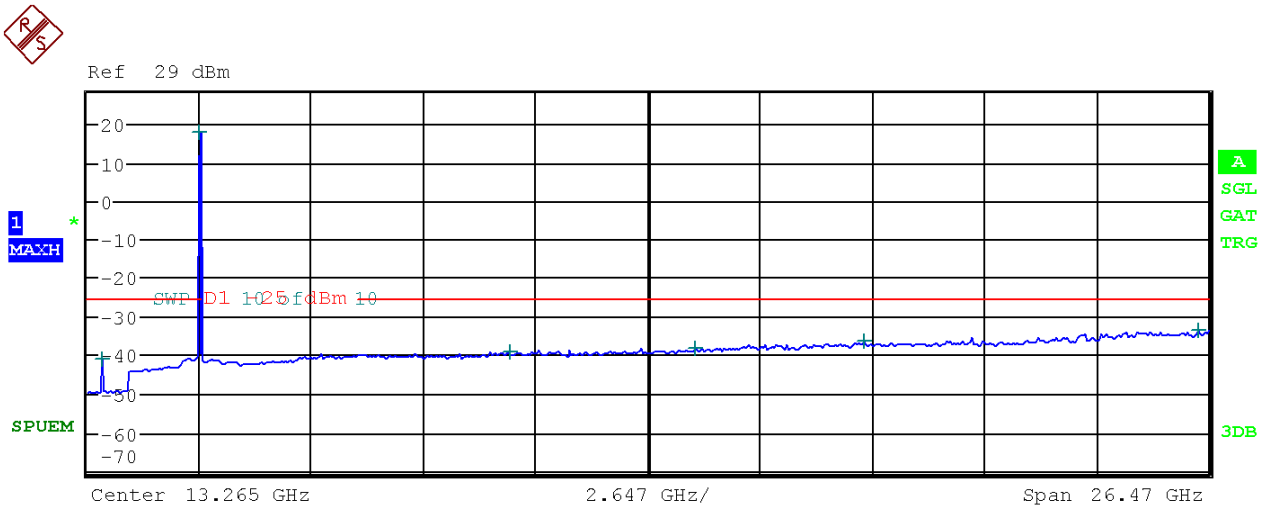


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	369.500000 M	-41.09	-200.00
1.000 G	5.000 G	1.00 M	2.686667 G	18.37	-200.00
5.000 G	10.000 G	1.00 M	9.707000 G	-39.82	-200.00
10.000 G	15.000 G	1.00 M	10.196500 G	-37.99	-200.00
15.000 G	20.000 G	1.00 M	19.697000 G	-36.66	-200.00
20.000 G	26.500 G	1.00 M	24.800250 G	-33.80	-200.00

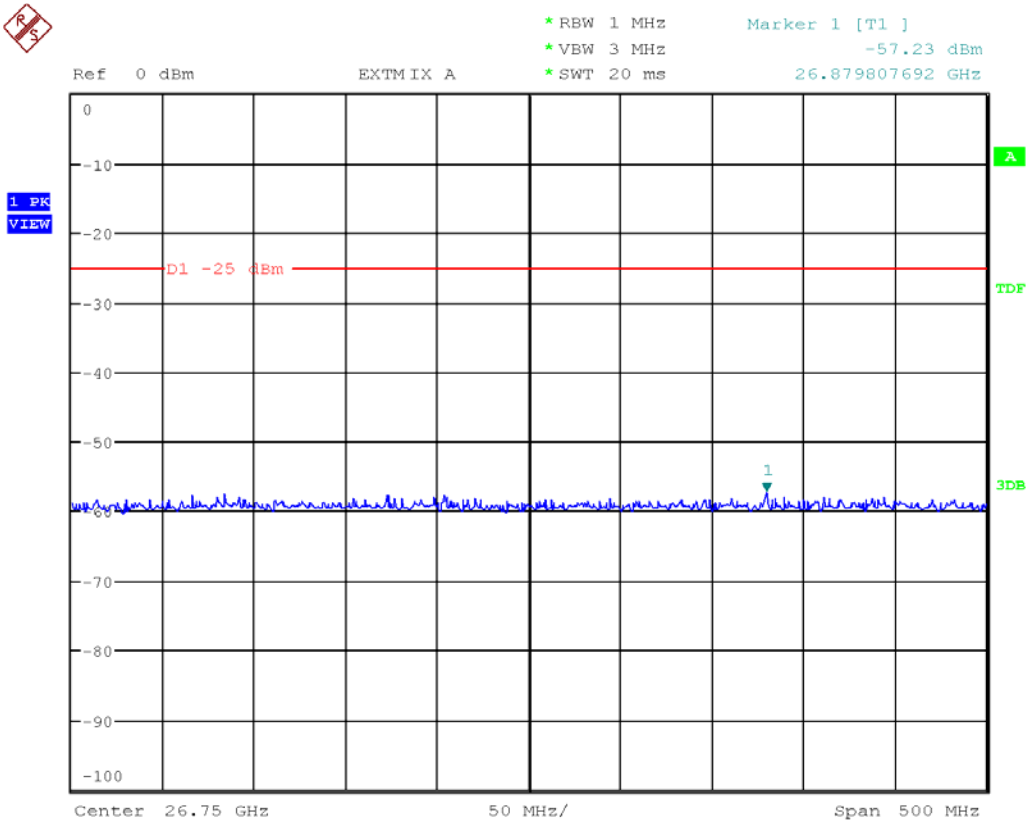


Conducted Spurious Emissions

OBW: 10MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	1.000 G	100.00 k	369.500000 M	-41.35	-200.00
1.000 G	5.000 G	1.00 M	2.680000 G	18.20	-200.00
5.000 G	10.000 G	1.00 M	9.986000 G	-39.52	-200.00
10.000 G	15.000 G	1.00 M	14.375000 G	-38.17	-200.00
15.000 G	20.000 G	1.00 M	18.345500 G	-36.54	-200.00
20.000 G	26.500 G	1.00 M	26.226350 G	-33.79	-200.00



3.2.5 Frequency Stability

- Procedure:

The frequency stability of the transmitter is measured by:

a) **Temperature** : The temperature is varied from -30°C to + 50°C using an environmental chamber with 10°C increments.

b) **Primary Supply Voltage** : The primary supply voltage is varied from 85% to 115% of the nominal voltage at the input to the device or at the power supply terminals if cables are not normally supplied.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature.(20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

- Measurement Data: Comply

Note 1: See next pages for measurement data.

- Minimum Standard:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Measurement Data:

BANDWIDTH	:	5	MHZ
ZONE MODE	:	AMC	
MODULATION TYPE	:	QPSK 1/2	
OPERATING FREQUENCY	:	2,600,000,005	Hz
REFERENCE VOLTAGE	:	3.7	V_{DC}

VOLTAGE (%)	POWER (VDC)	TEMP (℃)	FREQ (Hz)	Deviation (ppm)
100%	3.7	+20(Ref)	2,600,000,005	0.000
100%		-30	2,599,999,977	-0.011
100%		-20	2,599,999,985	-0.008
100%		-10	2,599,999,984	-0.008
100%		0	2,599,999,992	-0.005
100%		+10	2,599,999,995	-0.004
100%		+20	2,600,000,008	0.001
100%		+30	2,600,000,007	0.001
100%		+40	2,600,000,009	0.002
100%		+50	2,599,999,988	-0.007
85%	3.145	+20	N/A	N/A
115%	4.255	+20	2,599,999,986	-0.007
BATT.ENDPOINT	3.400	+20	2,599,999,990	-0.006

Measurement Data:

BANDWIDTH	:	10	MHZ
ZONE MODE	:	AMC	
MODULATION TYPE	:	QPSK 1/2	
OPERATING FREQUENCY	:	2,600,000,015	Hz
REFERENCE VOLTAGE	:	3.7	V_{DC}

VOLTAGE (%)	POWER (VDC)	TEMP (℃)	FREQ (Hz)	Deviation (ppm)
100%	3.7	+20(Ref)	2,600,000,015	0.000
100%		-30	2,600,000,018	0.001
100%		-20	2,600,000,023	0.003
100%		-10	2,599,999,989	-0.010
100%		0	2,599,999,984	-0.012
100%		+10	2,600,000,016	0.000
100%		+20	2,600,000,015	0.000
100%		+30	2,600,000,013	-0.001
100%		+40	2,600,000,011	-0.002
100%		+50	2,600,000,015	0.000
85%	3.145	+20	N/A	N/A
115%	4.255	+20	2,599,999,980	-0.013
BATT.ENDPOINT	3.400	+20	2,599,999,973	-0.016

3.2.6 Radiated Spurious Emissions

- Procedure:

Spurious and harmonic emissions between the lowest frequency generated in this device and up to 10th harmonic of the highest generated in this device are measured at semi-anechoic chamber. The equipment under test is placed on a wooden turntable located at 3-meters from the receive antenna.
This test is based on the use of spectrum analyzer employing a RBW/VBW = 5MHz(OBW: 5MHz) and 10MHz(OBW: 10MHz) and peak detector mode.
The receive antenna height and turntable rotations are adjusted for the highest reading on the receive spectrum analyzer. A antenna is substituted in place of the EUT. This antenna is driven by a vector signal generator for spurious emissions. The level of the signal generator is adjusted to obtain the same spectrum analyzer's reading level when EUT existed. After that conducted power at the input terminal of the transmit antenna is measured and this conducted power is corrected with antenna gain in dBi. This spurious level was recorded.

Note: Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004

- Measurement Data: Comply

Note 1: See next pages for worst case measurement data.

- **Minimum Standard:**

On any frequency outside a licensee`s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 55 + 10log(P) dB. The limit of emission equal to -25 dBm

Measurement Data:

- OBW: 5MHz & Main Antenna

Tested Freq.	Mod. Type	Frequency (MHz)	EUT Position	TEST CONDITIONS				
				Ref. level (dBm)	Pol. (H/V)	Ant Gain (dBi)	Result (dBm)	Limit (dBm)
Lowest	QPSK1/2	4996.30	Z	-57.59	H	10.89	-44.46	-25.00
		7495.73	Y	-60.74	H	11.72	-42.51	-25.00
	16QAM1/2	4998.06	Z	-57.56	H	10.88	-44.44	-25.00
		7494.82	Y	-60.28	H	11.72	-42.05	-25.00
	64QAM2/3	4997.94	Z	-56.62	H	10.89	-43.49	-25.00
		7495.59	Y	-62.29	H	11.72	-44.06	-25.00
Middle	QPSK1/2	5200.48	Z	-55.82	H	11.01	-42.19	-25.00
		7800.38	Y	-61.74	H	11.59	-44.40	-25.00
	16QAM1/2	5200.51	Z	-55.51	H	11.01	-41.88	-25.00
		7802.69	Y	-60.83	H	11.59	-43.49	-25.00
	64QAM2/3	5199.90	Z	-55.74	H	11.01	-42.11	-25.00
		7801.76	Y	-58.93	H	11.59	-41.59	-25.00
Highest	QPSK1/2	5375.30	Z	-57.11	H	11.10	-43.29	-25.00
		8060.96	Y	-59.75	H	11.51	-40.74	-25.00
	16QAM1/2	5373.08	Z	-57.14	H	11.10	-43.32	-25.00
		8060.38	Y	-60.51	H	11.51	-41.50	-25.00
	64QAM2/3	5374.37	Z	-57.32	H	11.10	-43.50	-25.00
		8059.22	Y	-61.99	H	11.51	-42.98	-25.00

- OBW: 10MHz & Main Antenna

Tested Freq.	Mod. Type	Frequency (MHz)	EUT Position	TEST CONDITIONS				
				Ref. level (dBm)	Pol. (H/V)	Ant Gain (dBi)	Result (dBm)	Limit (dBm)
Lowest	QPSK1/2	5014.72	Z	-55.17	H	10.90	-41.73	-25.00
		7524.44	Y	-65.15	H	11.70	-47.05	-25.00
	16QAM1/2	5016.39	Z	-55.92	H	10.90	-42.48	-25.00
		7527.81	Y	-65.46	H	11.70	-47.36	-25.00
	64QAM2/3	5011.58	Z	-55.46	H	10.90	-42.02	-25.00
		7522.87	Y	-60.79	H	11.70	-42.69	-25.00
Middle	QPSK1/2	5198.69	Z	-59.70	H	11.01	-46.07	-25.00
		7799.62	Y	-66.05	H	11.59	-48.71	-25.00
	16QAM1/2	5200.77	Z	-59.54	H	11.01	-45.91	-25.00
		7798.14	Y	-66.62	H	11.59	-49.28	-25.00
	64QAM2/3	5200.03	Z	-58.93	H	11.01	-45.30	-25.00
		7796.54	Y	-60.49	H	11.59	-43.15	-25.00
Highest	QPSK1/2	5367.32	Z	-60.69	H	11.11	-46.86	-25.00
		8048.80	Y	-65.09	H	11.51	-46.74	-25.00
	16QAM1/2	5366.55	Z	-60.14	H	11.11	-46.31	-25.00
		8053.13	Y	-63.99	H	11.51	-45.64	-25.00
	64QAM2/3	5368.79	Z	-58.92	H	11.11	-45.09	-25.00
		8048.32	Y	-60.36	H	11.51	-42.01	-25.00

3.2.7 99% Occupied Bandwidth

- Procedure:

The bandwidth was measured by spectrum analyzer with RBW = 51KHz(for the Associated Channel BW = 5MHz) and RBW = 100KHz(for the Associated Channel BW = 10MHz).

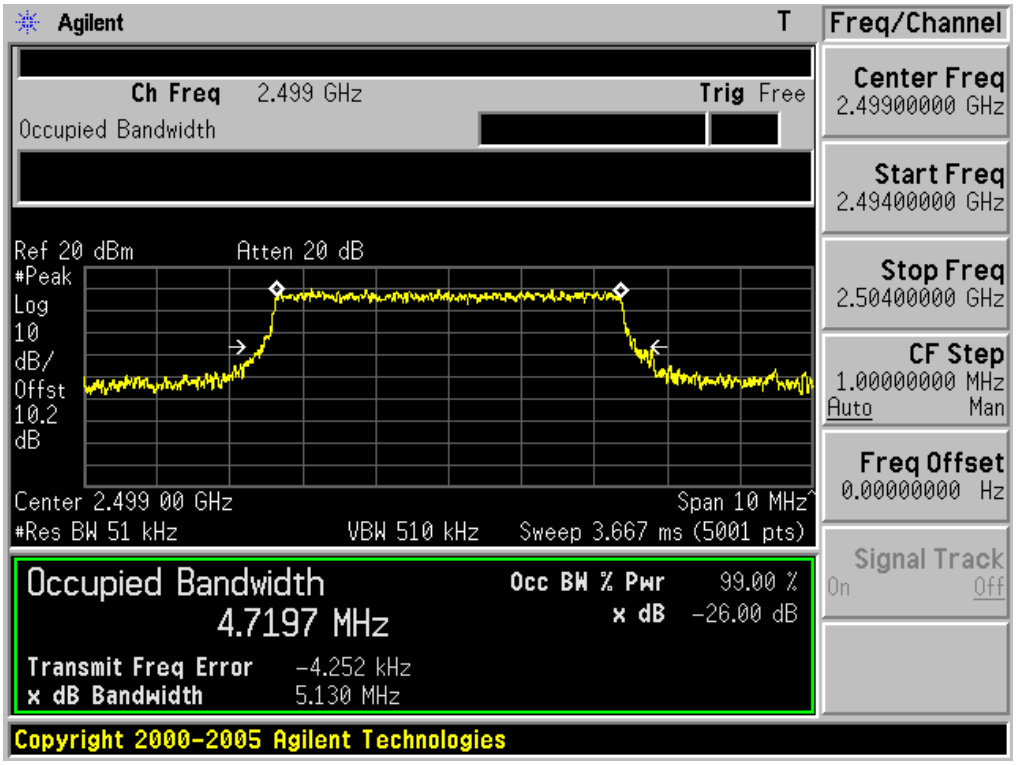
- Measurement Data:

Zone Format	Modulation Type	OBW: 5MHz			OBW: 10MHz		
		Lowest frequency	Middle frequency	Highest frequency	Lowest frequency	Middle frequency	Highest frequency
PUSC	QPSK1/2	4.4545	4.4481	4.4413	9.0989	9.1222	9.1069
	QPSK3/4	4.4375	4.4385	4.4427	9.1074	9.0732	9.0875
	16QAM1/2	4.4424	4.4457	4.4398	9.1062	9.1242	9.1039
	16QAM3/4	4.4441	4.4566	4.4379	9.0816	9.1071	9.0790
	64QAM1/2	4.4359	4.4385	4.4338	9.1161	9.1165	9.1315
	64QAM2/3	4.4292	4.4265	4.4382	9.0944	9.1041	9.0852
	64QAM3/4	4.4440	4.4431	4.4483	9.0728	9.0755	9.0940
	64QAM5/6	4.4346	4.4435	4.4330	9.1173	9.0374	9.0923
AMC	QPSK1/2	4.6913	4.7030	4.6960	9.3179	9.3492	9.3560
	QPSK3/4	4.7079	4.7085	4.7029	9.3365	9.3241	9.3587
	16QAM1/2	**4.7197**	4.7052	4.7047	**9.3550**	9.3374	**9.3828**
	16QAM3/4	4.6989	4.6918	4.6977	9.3319	9.3193	9.3172
	64QAM1/2	4.7038	4.7057	4.7016	9.3517	9.3397	9.3570
	64QAM2/3	4.6929	4.6992	**4.7114**	9.3491	9.3607	9.3540
	64QAM3/4	4.6990	**4.7138**	4.7109	9.3486	**9.3673**	9.3594
	64QAM5/6	4.7015	4.7070	4.7084	9.3377	9.3485	9.3466

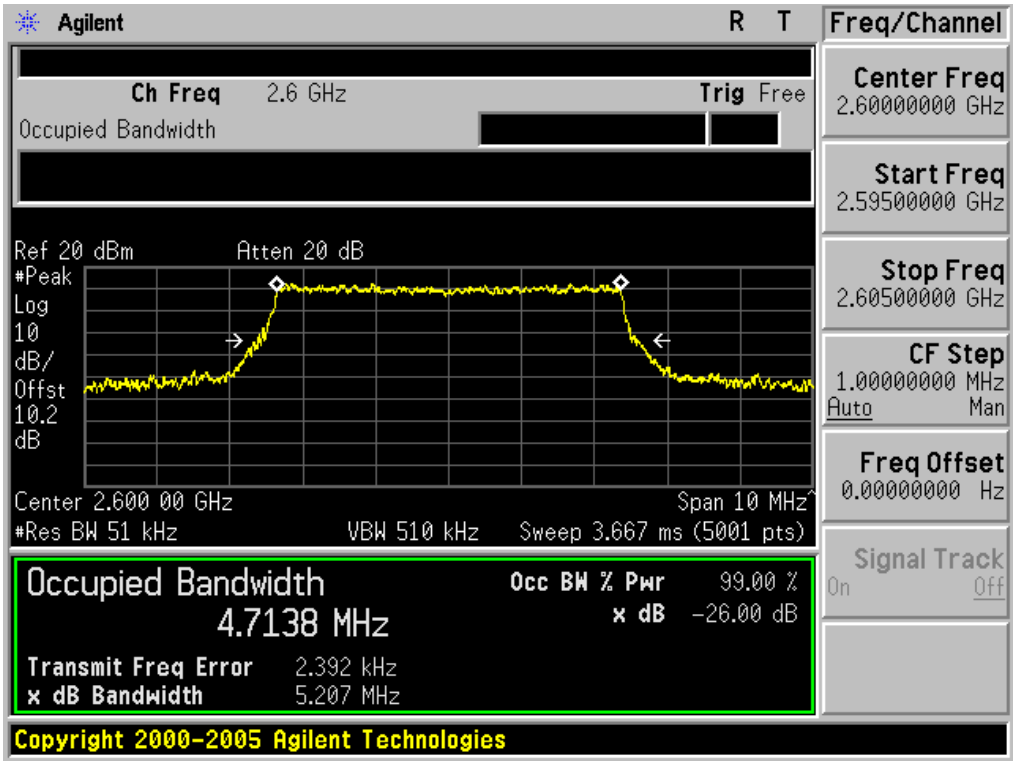
Note 1: This test item was performed in the worst case antenna port. (At the main antenna port).
See next pages for above worst case test plots.

- **Minimum Standard: N/A**

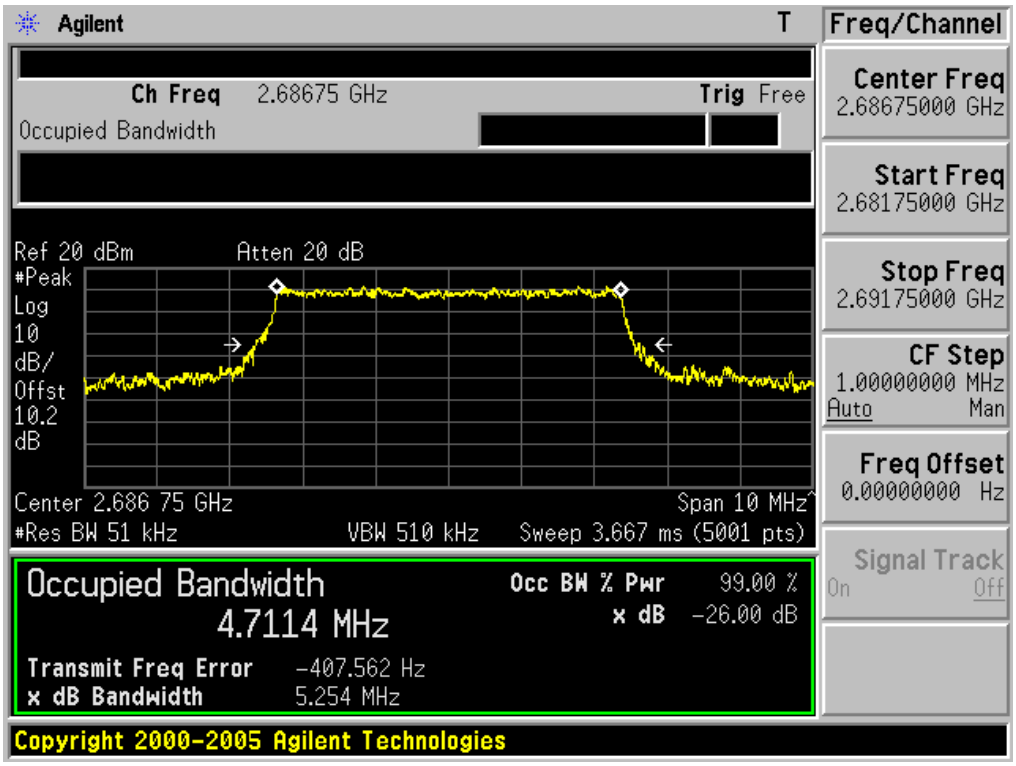
99% OBW OBW: 5MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna



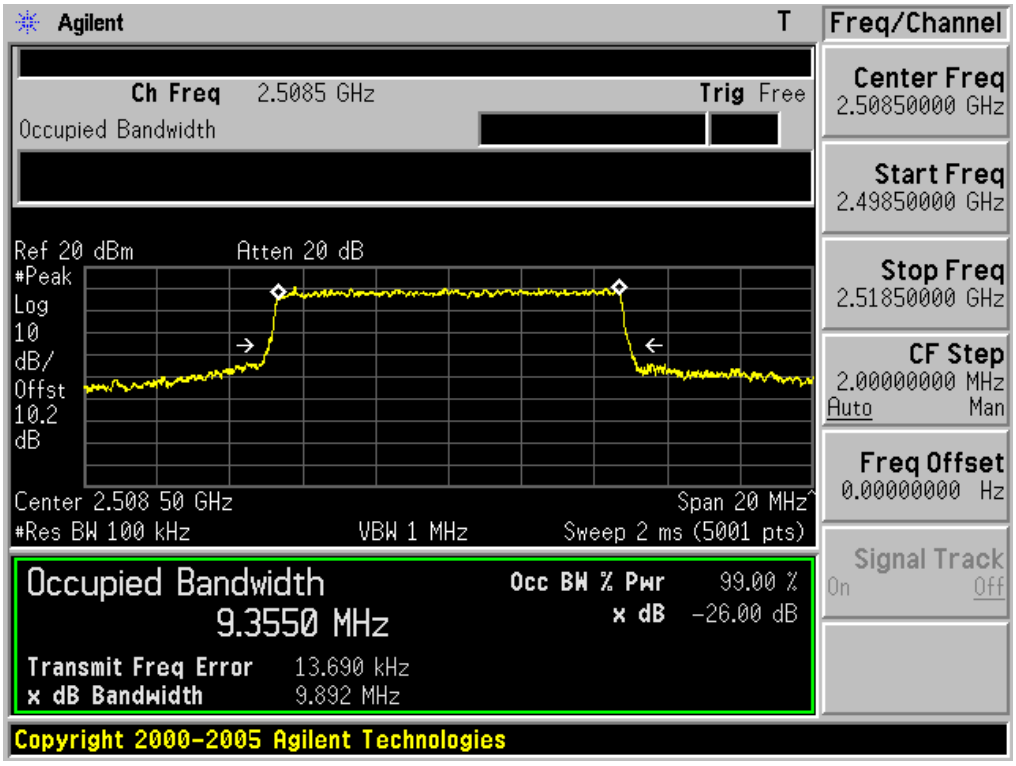
99% OBW OBW: 5MHz & Middle Frequency & AMC Zone & 64QAM3/4 & Main Antenna



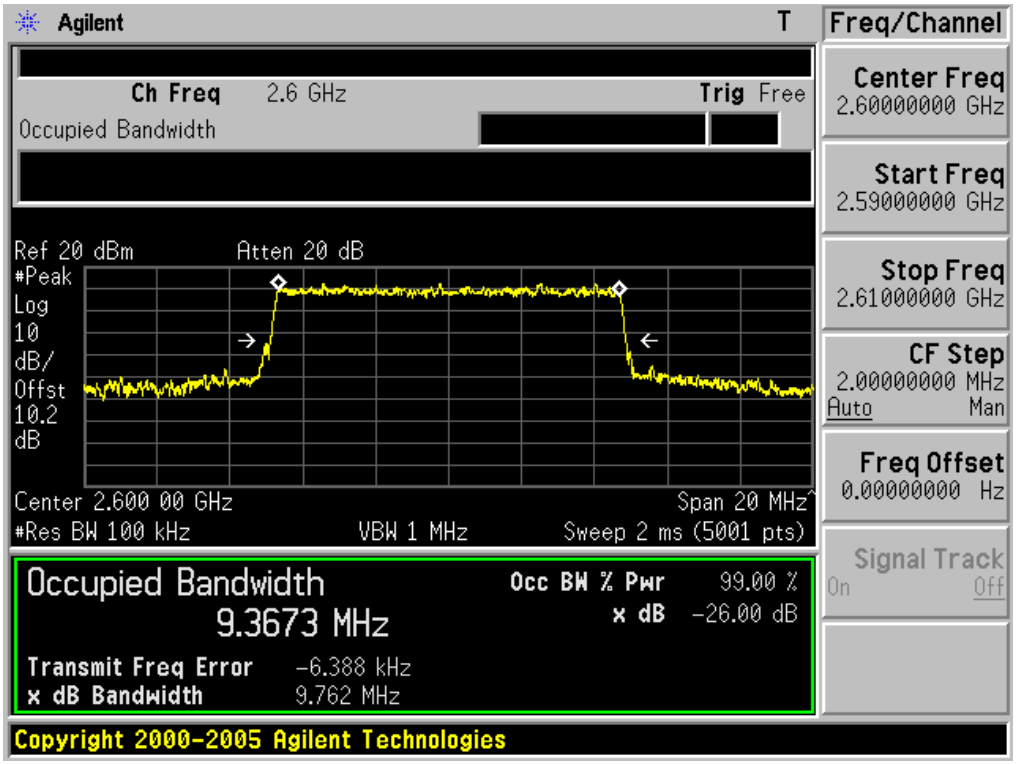
99% OBW OBW: 5MHz & Highest Frequency & AMC Zone & 64QAM2/3 & Main Antenna



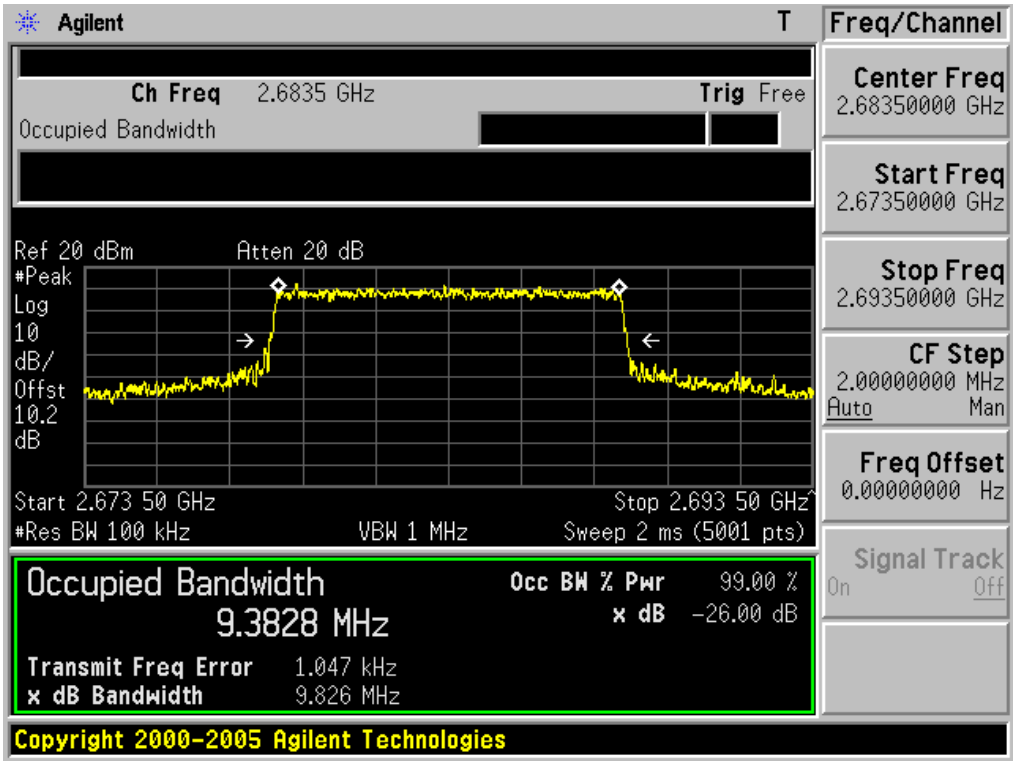
99% OBW OBW: 10MHz & Lowest Frequency & AMC Zone & 16QAM1/2 & Main Antenna



99% OBW OBW: 10MHz & Middle Frequency & AMC Zone & 64QAM3/4 & Main Antenna



99% OBW OBW: 10MHz & Highest Frequency & AMC Zone & 16QAM1/2 & Main Antenna



APPENDIX

TEST EQUIPMENT FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☒	Spectrum Analyzer	Agilent	E4440A	11/09/30	12/09/30	MY45304199
☒	Spectrum Analyzer	Rohde Schwarz	FSQ26	12/01/09	13/01/09	200445
☐	Spectrum analyzer	Agilent	E4404B	11/03/08	12/03/08	US41061134
☐	Spectrum Analyzer(RE)	H.P	8563E	11/10/04	12/10/04	3551A04634
☐	MXA Signal Analyzer	Agilent Technologies, Inc	N9020A	12/01/09	13/01/09	MY49100833
☐	Power Meter	H.P	EPM-442A	11/07/01	12/07/01	GB37170413
☐	Power Sensor	H.P	8481A	11/07/01	12/07/01	3318A96332
☐	Wideband Power Sensor	Rohde Schwarz	NRP-Z81	11/06/04	12/06/04	1137.9009.02-101001
☐	Virtual Power Meter(S/W)	Rohde Schwarz	R&S Power Viewer Plus	-	-	V 4.1.0
☐	Power Divider	Agilent	11636B	11/09/30	12/09/30	56471
☐	4-Way Power Divider	ET Industries	D-0526-4	11/12/01	12/12/01	210195001
☒	Power Splitter	Anritsu	K241B	11/09/30	12/09/30	020611
☐	Power Splitter	Anritsu	K241B	11/07/01	12/07/01	017060
☐	Power Splitters & Dividers	Aeroflex/Weinschel	1594	11/02/21	12/02/21	1177
☐	Frequency Counter	H.P	5342A	11/07/01	12/07/01	2119A04450
☒	TEMP & HUMIDITY Chamber	JISCO	KR-100/J-RHC2	11/09/30	12/09/30	30604493/021031
☒	Digital Multimeter	H.P	34401A	11/03/07	12/03/07	3146A13475, US36122178
☐	Multifunction Synthesizer	HP	8904A	11/10/06	12/10/06	3633A08404
☒	Signal Generator	Rohde Schwarz	SMR20	11/03/08	12/03/08	101251
☐	Signal Generator	H.P	ESG-3000A	11/07/01	12/07/01	US37230529
☐	Vector Signal Generator	Rohde Schwarz	SMJ100A	12/01/09	13/01/09	100148
☒	Vector Signal Generator	Rohde Schwarz	SMBV100A	12/01/09	13/01/09	255571
☐	Audio Analyzer	H.P	8903B	11/07/02	12/07/02	3011A09448
☐	Modulation Analyzer	H.P	8901B	11/07/01	12/07/01	3028A03029
☐	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	11/03/07	12/03/07	GB43461134
☐	Universal Radio communication Tester	Rohde Schwarz	CMU200	11/03/07	12/03/07	106760
☐	Bluetooth Tester	TESCOM	TC-3000B	11/07/01	12/07/01	3000B000268
☐	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-3
☒	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-2
☐	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-4
☐	AC Power supply	DAEKWANG	5KVA	11/03/08	12/03/08	20060321-1
☒	DC Power Supply	HP	6622A	11/03/07	12/03/07	3448A03760
☐	DC Power Supply	HP	6633A	11/03/07	12/03/07	3524A06634
☐	DC Power Supply	Protek	PWS-3010D	11/09/30	12/09/30	4072702
☐	DC Power Supply	SM techno	SDP30-5D	11/05/20	12/05/20	305DKA013
☐	BAND Reject Filter	Microwave Circuits	N0308372	11/09/30	12/09/30	3125-01DC0352
☐	BAND Reject Filter	Wainwright	WRCG1750	11/09/30	12/09/30	2
☐	High-Pass Filter	ANRITSU	MP526D	11/09/30	12/09/30	M27756

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☐	High-pass filter	Wainwright	WHNX2.1	11/09/30	12/09/30	1
☒	High-pass filter	Wainwright	WHNX3.0	11/09/30	12/09/30	9
☐	High-pass filter	Wainwright	WHNX5.0	11/09/19	12/09/19	8
☐	High-Pass Filter	Wainwright	WHKX8.5	11/09/19	12/09/19	1
☐	High-Pass Filter	Wainwright	WHKX1.0	11/09/30	12/09/30	9
☐	Tunable Notch Filter	Wainwright	WRCT800.0 /960.0-0.2/40-8SSK	N/A	N/A	32
☐	Tunable Notch Filter	Wainwright	WRCD1700.0 /2000.0-0.2/40-10SSK	N/A	N/A	53
☐	Tunable Notch Filter	Wainwright	WRCT1900.0/ 2200.0-5/40-10SSK	N/A	N/A	30
☒	HORN ANT	ETS	3115	11/09/06	12/09/06	21097
☒	HORN ANT	ETS	3115	11/03/22	12/03/22	6419
☒	HORN ANT	A.H.Systems	SAS-574	11/03/25	13/03/25	154
☐	HORN ANT	A.H.Systems	SAS-574	11/03/25	13/03/25	155
☐	HORN ANT	SCHWARZBECK	BBHA9120A	10/04/13	12/04/13	322
☒	Dipole Antenna	Schwarzbeck	VHA9103	11/11/22	12/11/22	2116
☒	Dipole Antenna	Schwarzbeck	VHA9103	11/11/22	12/11/22	2117
☒	Dipole Antenna	Schwarzbeck	UHA9105	11/11/22	12/11/22	2261
☒	Dipole Antenna	Schwarzbeck	UHA9105	11/11/22	12/11/22	2262
☐	LOOP Antenna	ETS	6502	10/10/29	12/10/29	3471
☐	Coaxial Fixed Attenuators	Agilent	8491B	11/07/02	12/07/02	MY39260700
☒	Attenuator (3dB)	WEINSCHEL	56-3	11/09/30	12/09/30	Y2342
☒	Attenuator (3dB)	WEINSCHEL	56-3	11/09/30	12/09/30	Y2370
☐	Attenuator (10dB)	WEINSCHEL	23-10-34	11/09/30	12/09/30	BP4386
☐	Attenuator (10dB)	WEINSCHEL	23-10-34	12/01/09	13/01/09	BP4387
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	11/09/30	12/09/30	446
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	11/09/30	12/09/30	408
☐	Attenuator (20dB)	WEINSCHEL	86-20-11	11/09/30	12/09/30	432
☐	Attenuator (30dB)	JFW	50FH-030-300	11/03/07	12/03/07	060320-1
☐	Attenuator (40dB)	WEINSCHEL	57-40-33	11/09/30	12/09/30	NN837
☐	Termination	H.P	HP-909D	11/07/02	12/07/02	02750
☐	Termination	H.P	HP-909D	11/07/02	12/07/02	02702
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	11/07/01	12/07/01	788
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	11/07/01	12/07/01	790
☐	Amplifier (30dB)	Agilent	8449B	11/03/07	12/03/07	3008A01590
☒	Amplifier (30dB)	H.P	8449B	11/03/07	12/03/07	3008A00370
☒	Amplifier	EMPOWER	BBS3Q7ELU	11/09/30	12/09/30	1020
☐	RF Power Amplifier	OPHIRRF	5069F	11/07/01	12/07/01	1006
☐	EMI TEST RECEIVER	R&S	ESU	12/01/09	13/01/09	100014

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☒	BILOG ANTENNA	SCHAFFNER	CBL6112B	10/07/14	12/07/14	2737
☒	Amplifier (22dB)	H.P	8447E	12/01/09	13/01/09	2945A02865
☐	EMI TEST RECEIVER	R&S	ESCI	11/03/08	12/03/08	100364
☐	BICONICAL ANT.	Schwarzbeck	VHA 9103	10/11/29	12/11/29	91032789
☐	LOG-PERIODIC ANT.	Schwarzbeck	UHALP9108A1	10/11/29	12/11/29	1098
☐	BICONICAL ANT.	Schwarzbeck	VHA 9103	10/12/21	12/12/21	91031946
☐	LOG-PERIODIC ANT.	Schwarzbeck	UHALP9108A1	10/07/07	12/07/07	0590
☐	Low Noise Pre Amplifier	TSJ	MLA-100K01-B01-2	11/03/07	12/03/07	1252741
☐	Low Noise Pre Amplifier	TSJ	MLA-00108-B02-36	12/01/09	13/01/09	1518831
☐	Amplifier (25dB)	Agilent	8447D	11/03/07	12/03/07	2944A10144
☐	Amplifier (25dB)	Agilent	8447D	11/07/01	12/07/01	2648A04922
☐	Spectrum Analyzer(CE)	H.P	8591E	11/03/07	12/03/07	3649A05889
☐	LISN	Kyoritsu	KNW-407	12/01/09	13/01/09	8-317-8
☐	LISN	Kyoritsu	KNW-242	11/07/02	12/07/02	8-654-15
☐	CVCF	NF Electronic	4420	11/09/15	12/19/15	304935/4420023
☐	50 ohm Terminator	HME	CT-01	12/01/09	13/01/09	N/A
☐	RFI/FIELD Intensity Meter	Kyoritsu	KNM-2402	11/07/02	12/07/02	4N-170-3
☐	EMI Test Receiver	R&S	ECSI	11/03/08	12/03/08	100364
☐	LISN	R&S	ESH2-Z5	11/09/30	12/09/30	8287391006
☐	CVCF	NF Electronic	4420	11/03/08	12/03/08	304935/337980
☐	RFI/FIELD Intensity Meter	ES4152	424059	11/09/30	12/09/30	424059
☐	Wideband Radio Communication Tester	R&S	CMW500	11/09/30	12/09/30	100989