6.8 TIME OF OCCUPANCY (DWELL TIME)

LIMIT

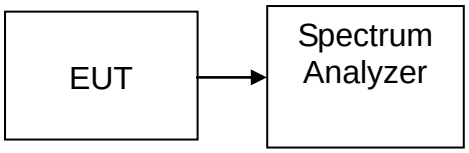
According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4s multiplied by the number of hopping channels employed.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	N9010A	MY55370330	02/21/2017	02/20/2018

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

No non-compliance noted

Antenna 1 Test Data

GFSK

DH 1

CH Mid: 0.405* (1600/2)/79 * 31.6 = 129.600(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	0.405	129.600	31.60	400.00	PASS

DH 3

CH Mid: 1.668* (1600/4)/79 * 31.6 = 266.880 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	1.668	266.880	31.60	400.00	PASS

DH 5

CH Mid: 2.916* (1600/6)/79 * 31.6 = 311.040(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	2.916	311.040	31.60	400.00	PASS

8DPSK

3DH 1

CH Mid: 0.410* (1600/2)/79 * 31.6 = 131.200 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	0.410	131.200	31.60	400.00	PASS

3DH 3

CH Mid: 1.664* (1600/4)/79 * 31.6 = 266.240 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	1.664	266.240	31.60	400.00	PASS

3DH 5

CH Mid: 2.912* (1600/6)/79 * 31.6 = 310.613(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	2.912	310.613	31.60	400.00	PASS

Antenna 2 Test Data

GFSK

DH 1

CH Mid: 0.412* (1600/2)/79 * 31.6 = 131.840(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	0.412	131.840	31.60	400.00	PASS

DH 3

CH Mid: 1.668* (1600/4)/79 * 31.6 = 265.600 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	1.668	265.600	31.60	400.00	PASS

DH 5

CH Mid: 2.928* (1600/6)/79 * 31.6 = 312.320(ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	2.928	312.320	31.60	400.00	PASS

8DPSK

3DH 1

CH Mid: 0.411* (1600/2)/79 * 31.6 = 131.520 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	0.411	131.520	31.60	400.00	PASS

3DH 3

CH Mid: 1.662* (1600/4)/79 * 31.6 = 265.920 (ms)

CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	1.662	265.920	31.60	400.00	PASS

3DH 5

CH Mid: 2.920* (1600/6)/79 * 31.6 = 311.467(ms)

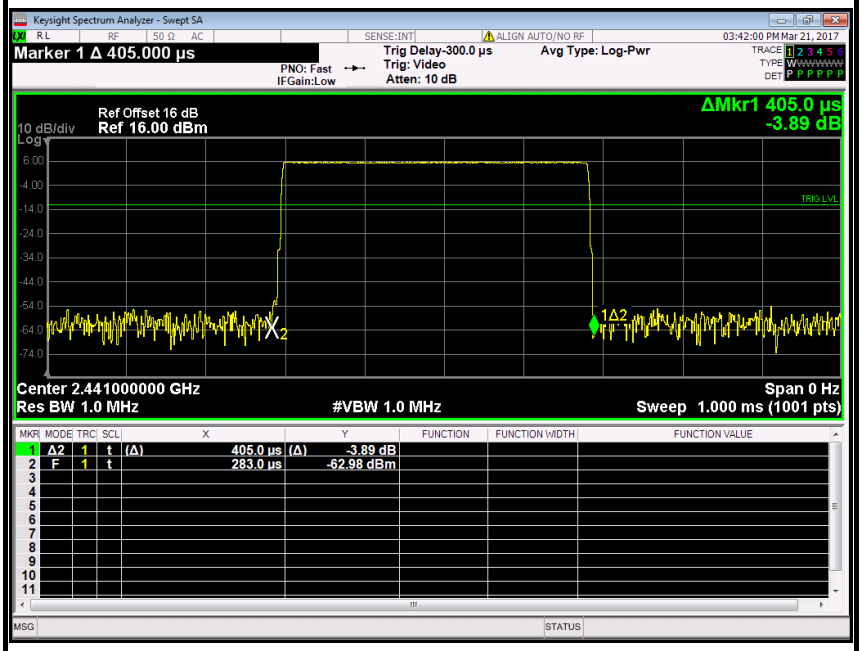
CH	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Mid	2.920	311.467	31.60	400.00	PASS

Antenna 1 Test Plot

GFSK

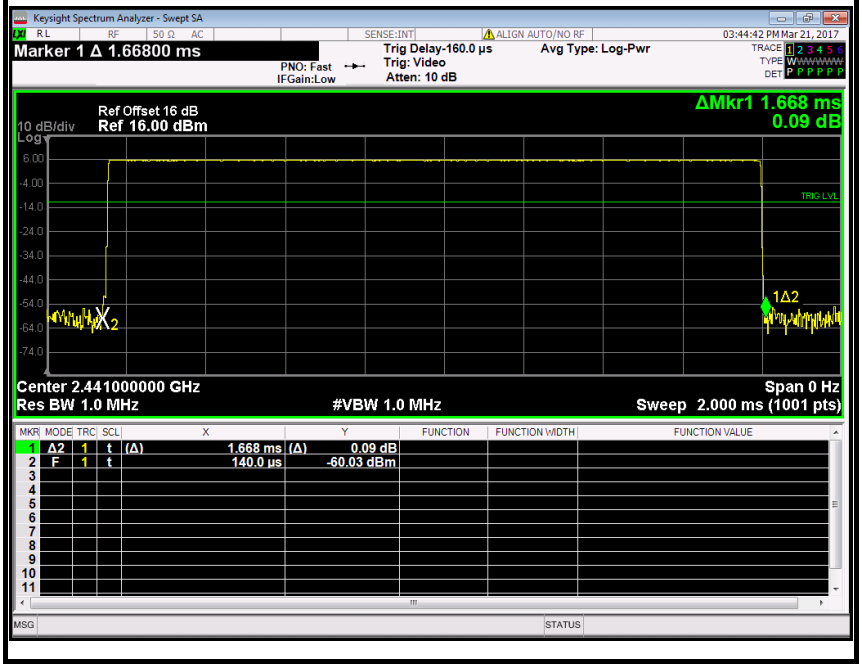
DH 1

CH Mid



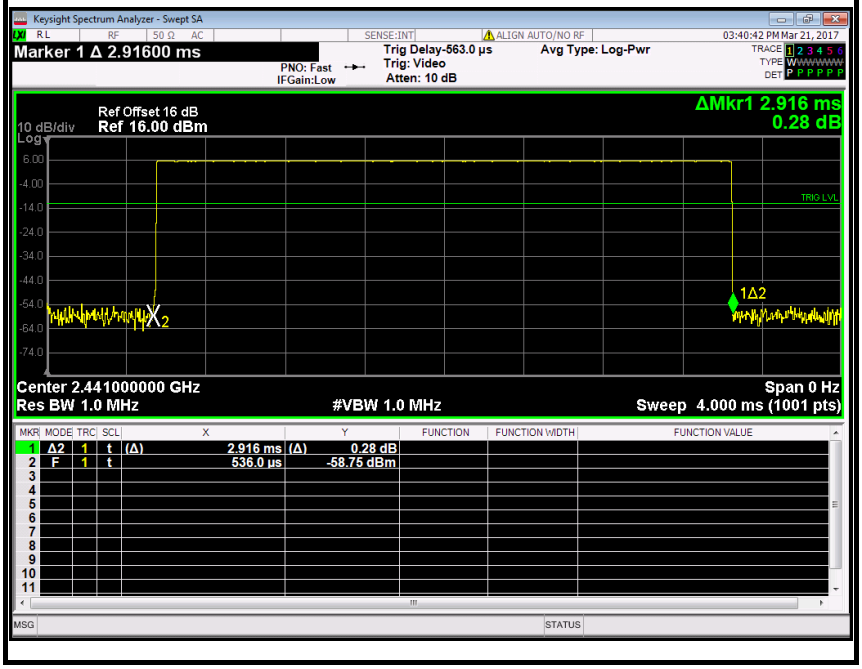
DH 3

CH Mid



DH 5

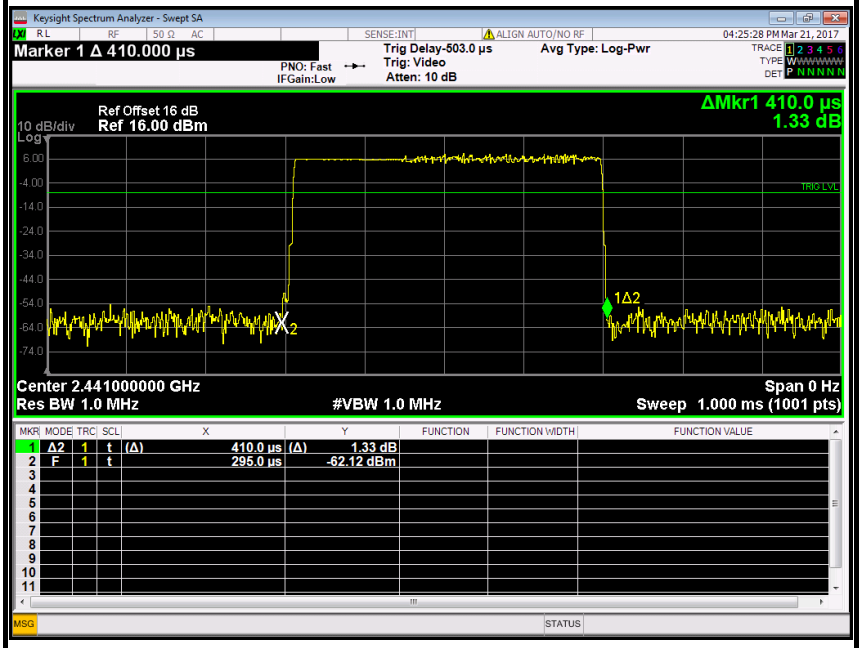
CH Mid



8DPSK

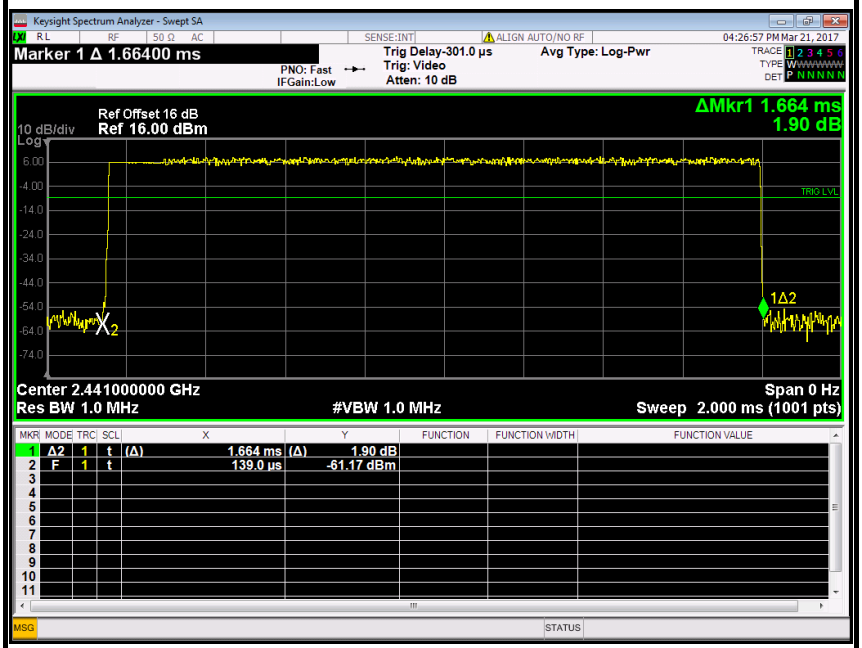
3DH 1

CH Mid



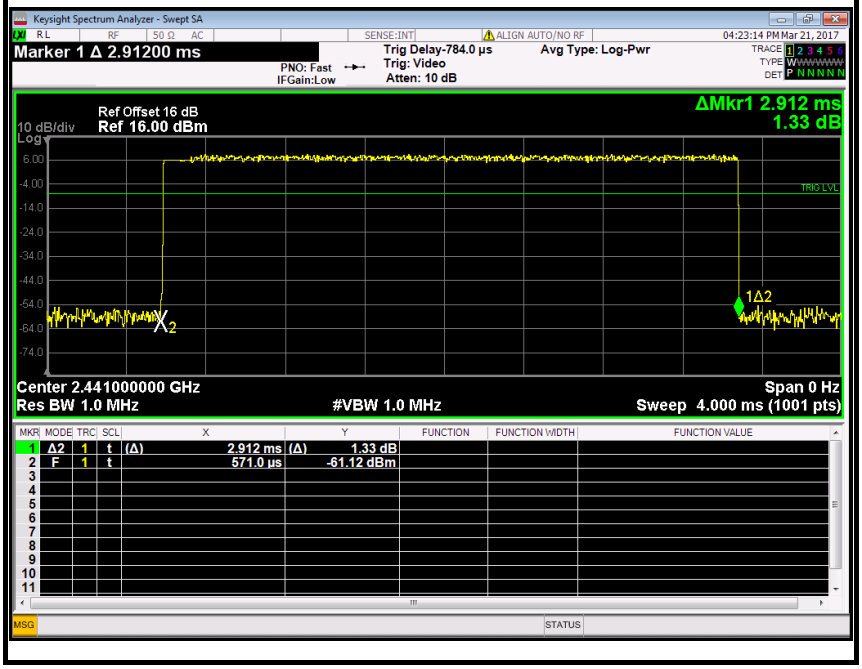
3DH 3

CH Mid



3DH 5

CH Mid

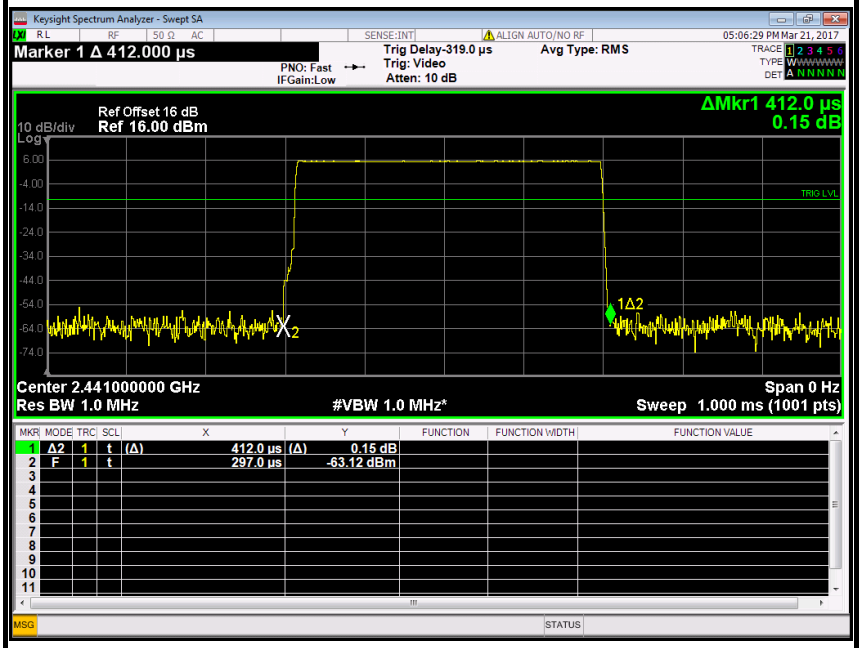


Antenna 2 Test Plot

GFSK

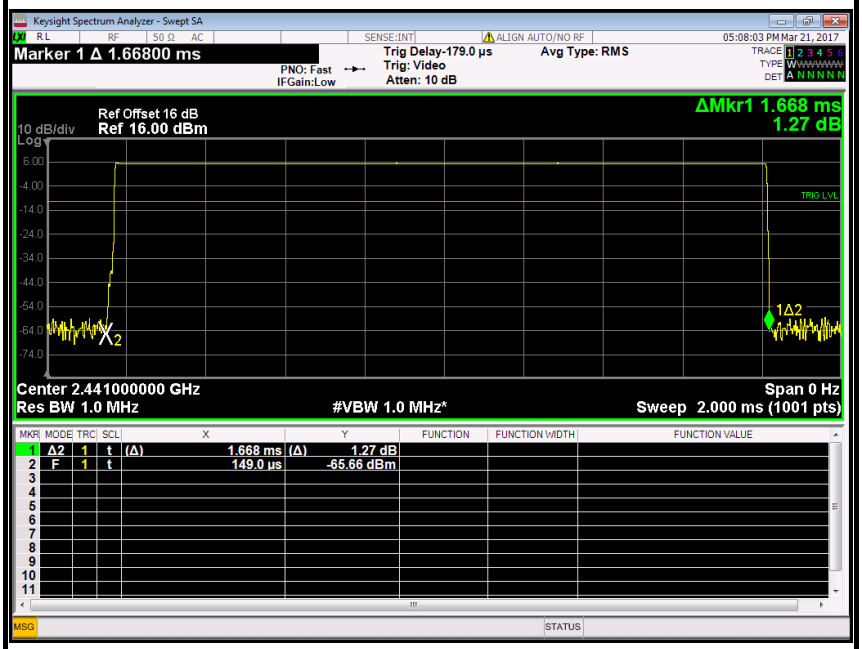
DH 1

CH Mid



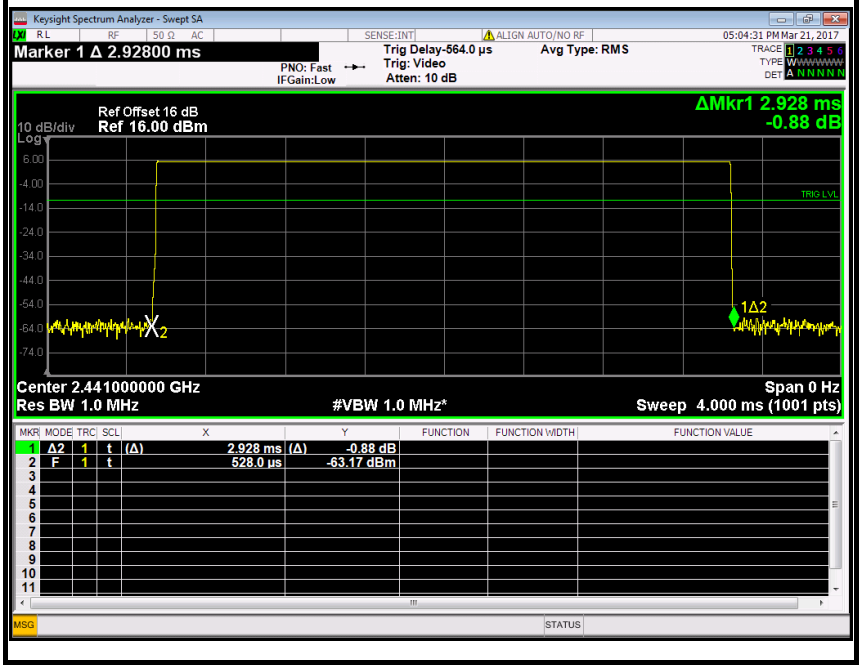
DH 3

CH Mid



DH 5

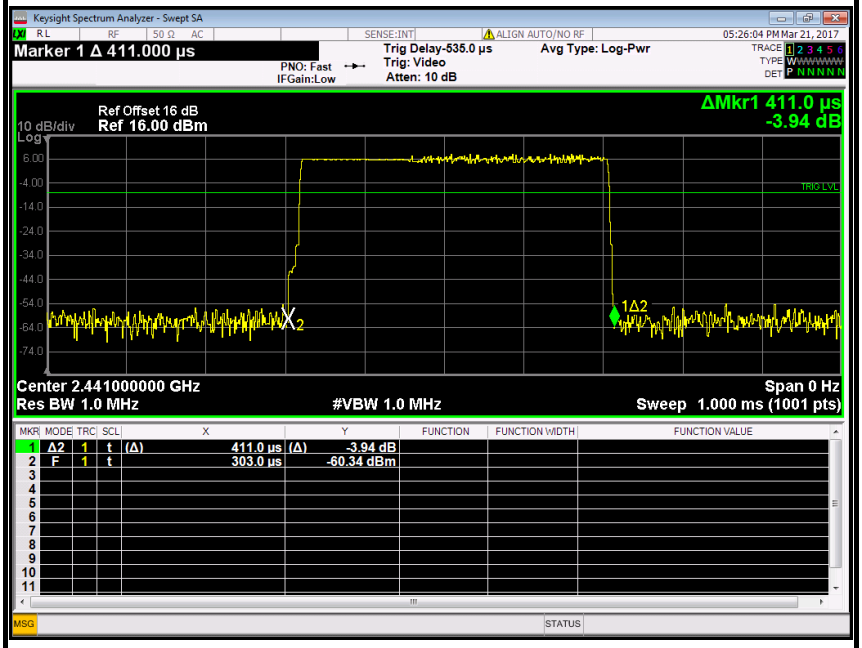
CH Mid



8DPSK

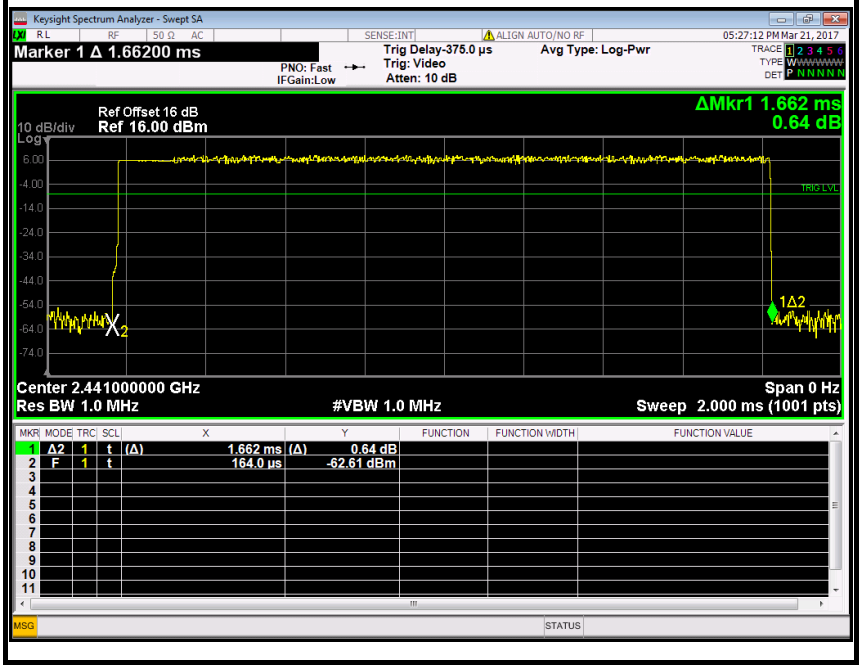
3DH 1

CH Mid



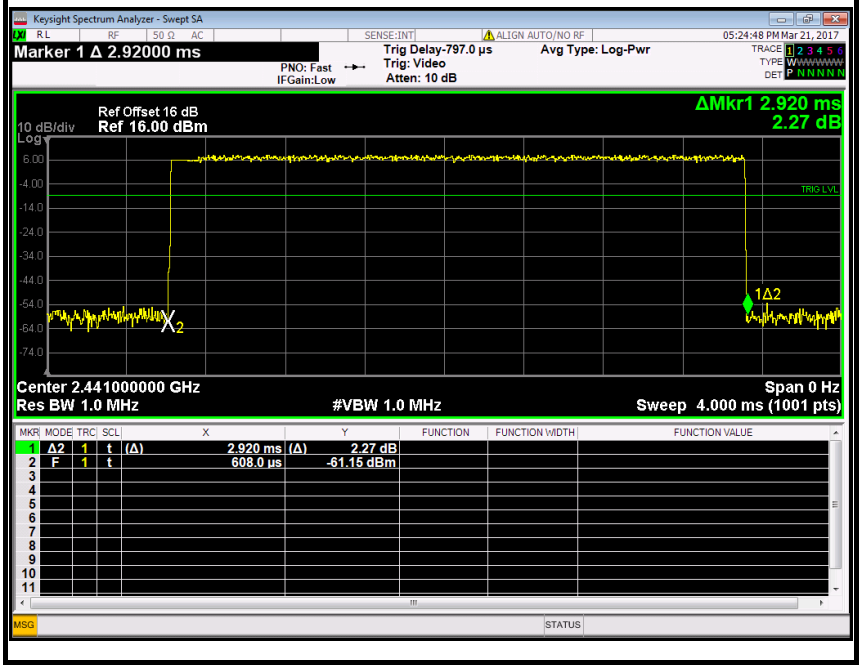
3DH 3

CH Mid



3DH 5

CH Mid



6.9 SPURIOUS EMISSIONS

6.9.1. CONDUCTED MEASUREMENT

LIMIT

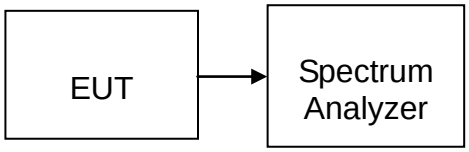
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Last Calibration	Due Calibration
Spectrum Analyzer	Agilent	N9010A	MY55370330	02/21/2017	02/20/2018

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

Measurements are made over the 9kHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels, and highest channels. No emission found between lowest internal used/generated frequency to 10MHz，it is only recorded 10MHz to 26GHz.

TEST RESULTS

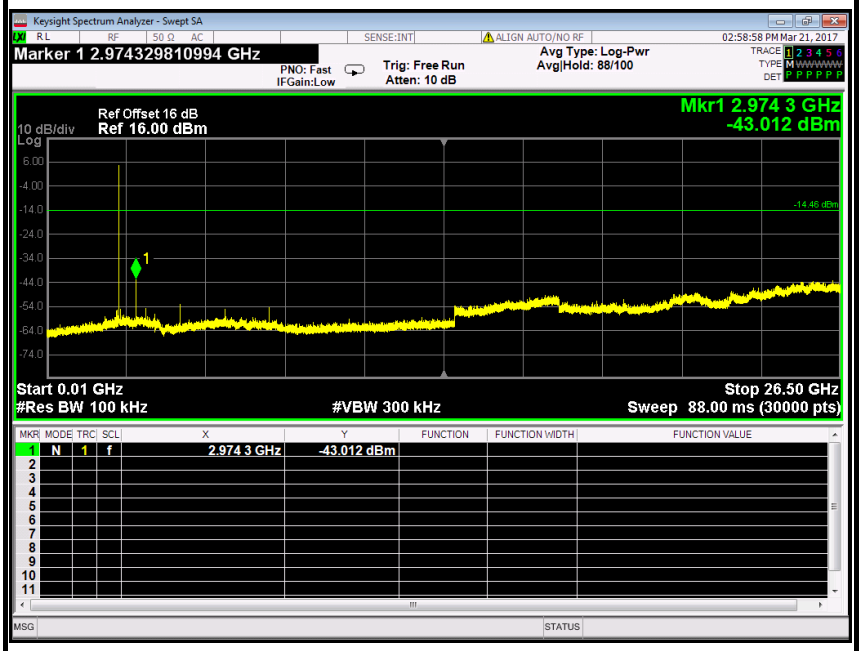
No non-compliance noted
Remark: *The hopping on mode and hopping off mode were chosen for pre-test and the hopping off mode was the worse case and print in the report.*

Hopping Off

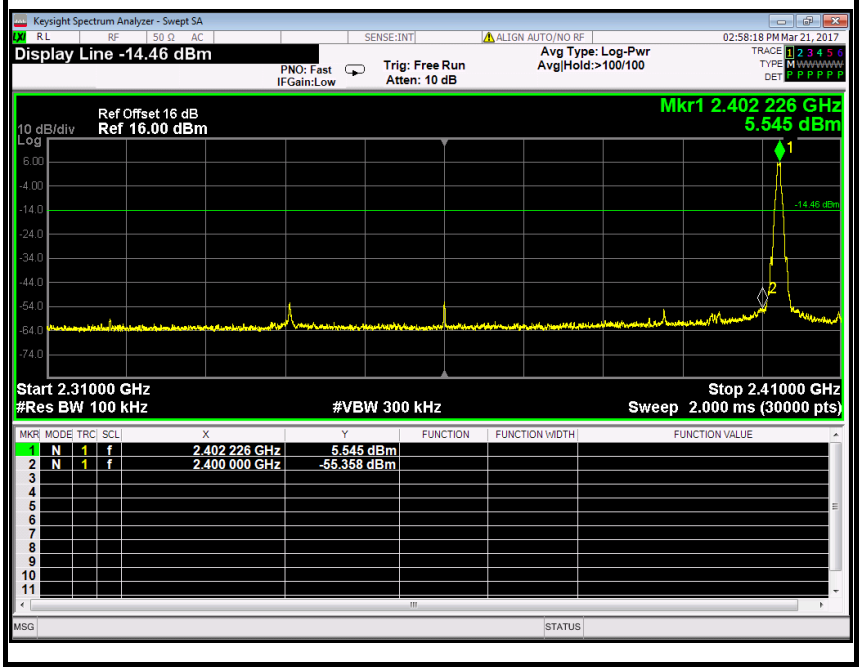
Antenna 1 Test Plot

GFSK

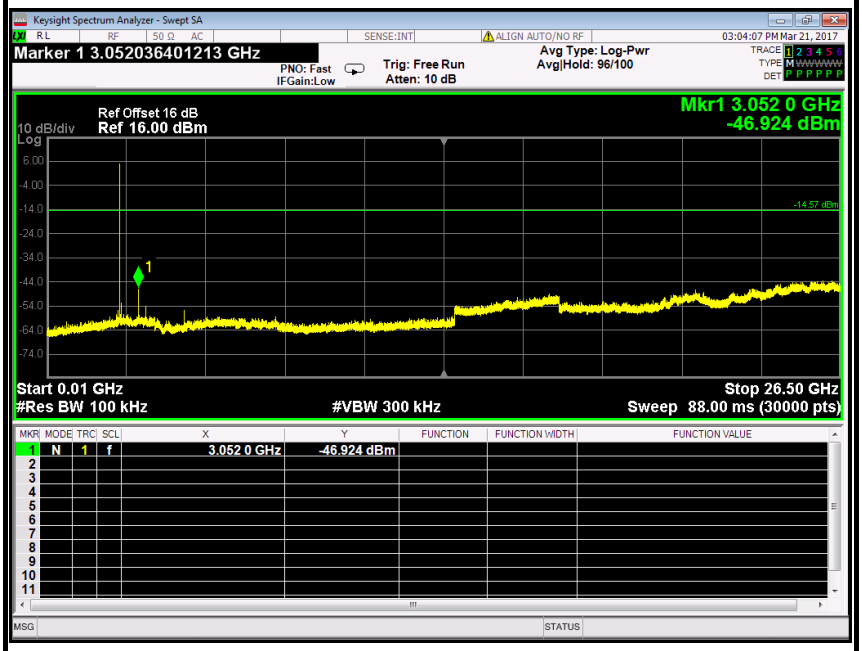
CH Low (10MHz ~26.5GHz)

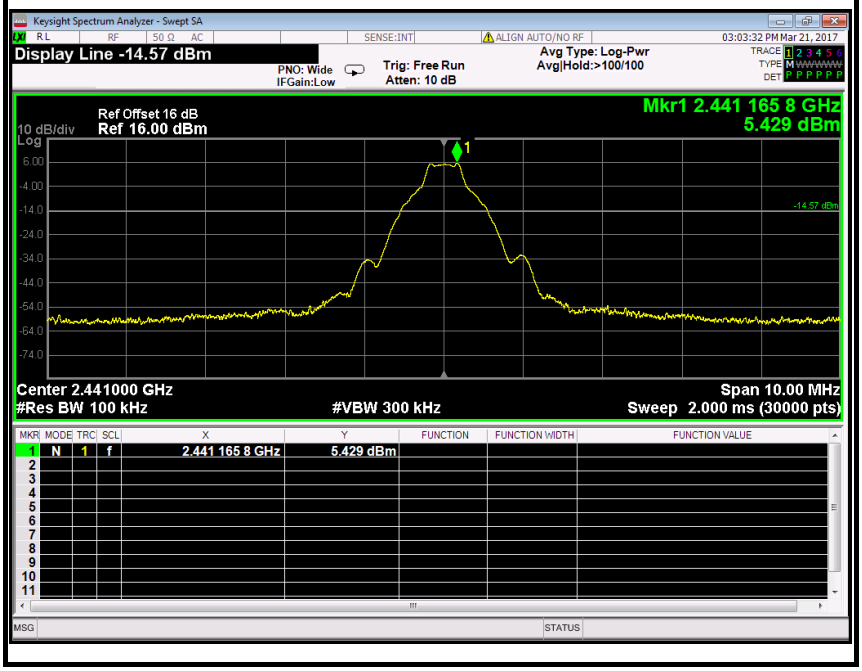


CH Low (2.31GHz ~2.41GHz)

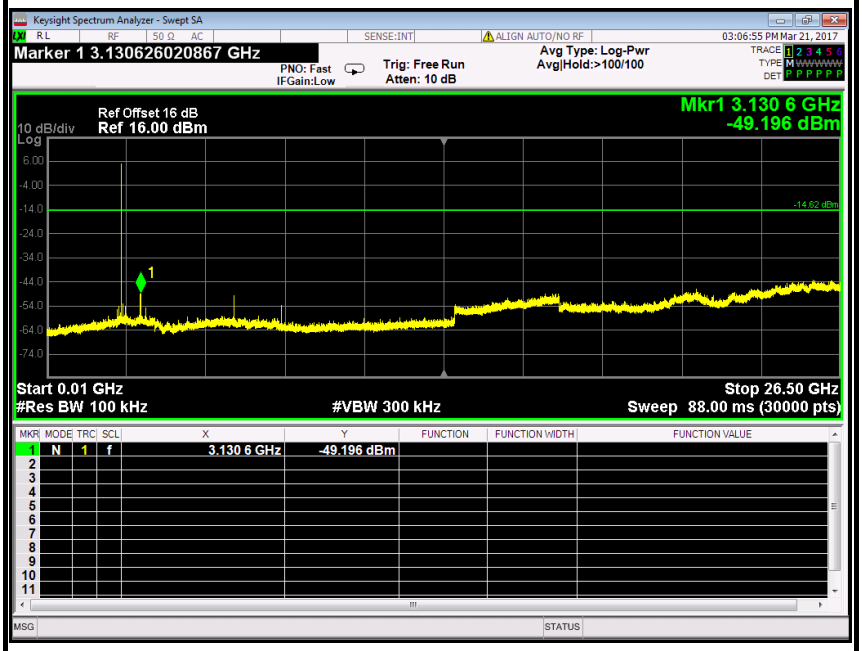


CH Mid (10MHz ~26.5GHz)

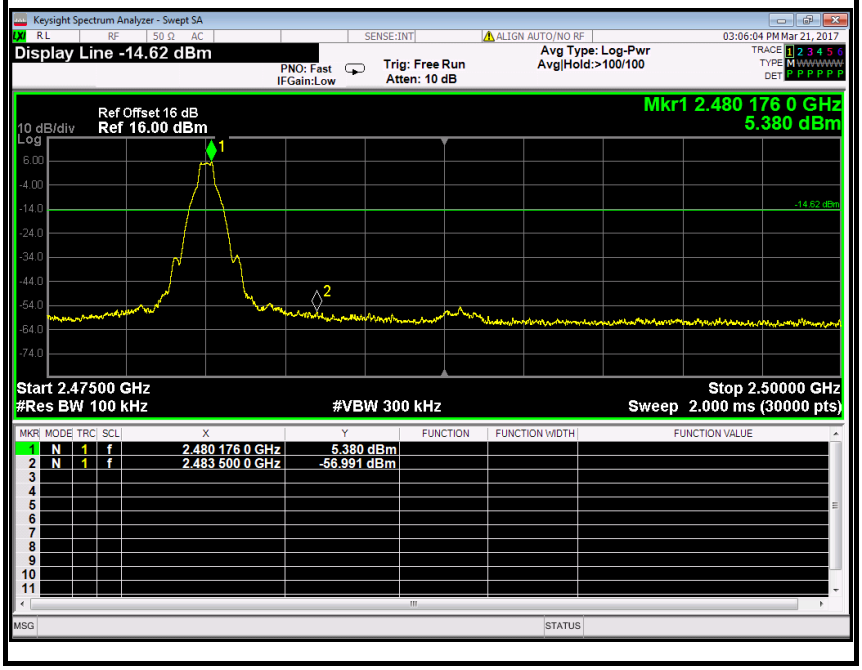




CH High (10MHz ~26.5GHz)

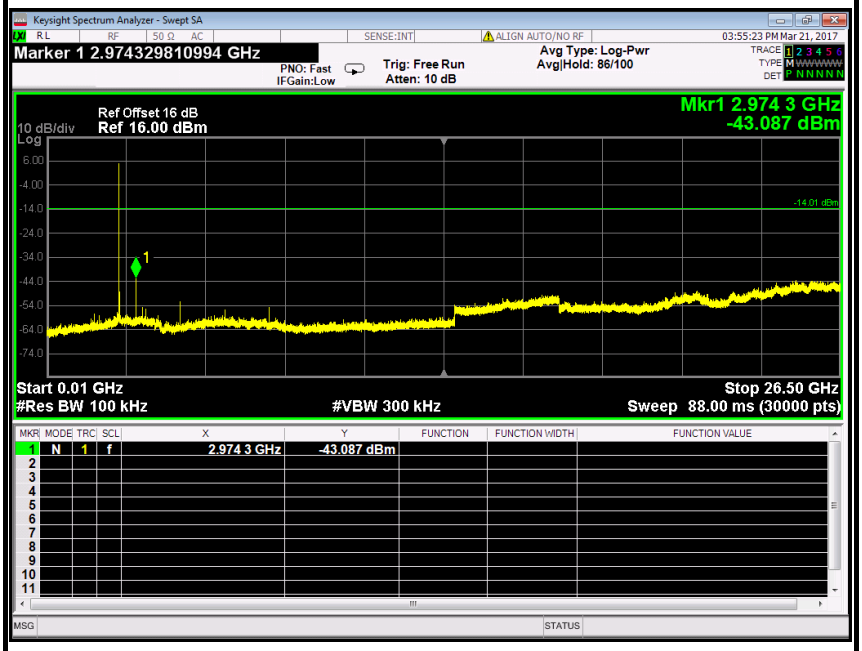


CH High (2.475GHz ~ 2.5GHz)

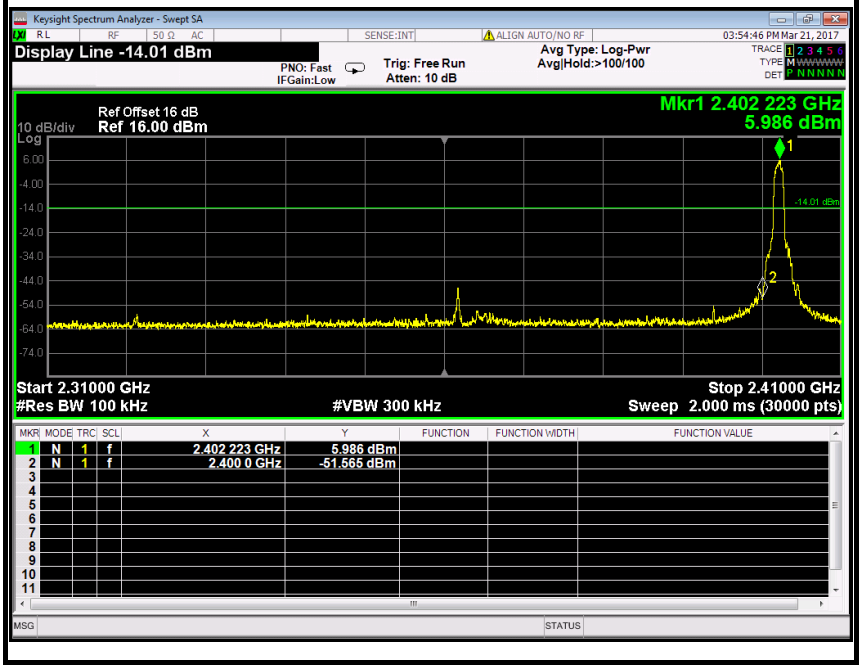


8DPSK

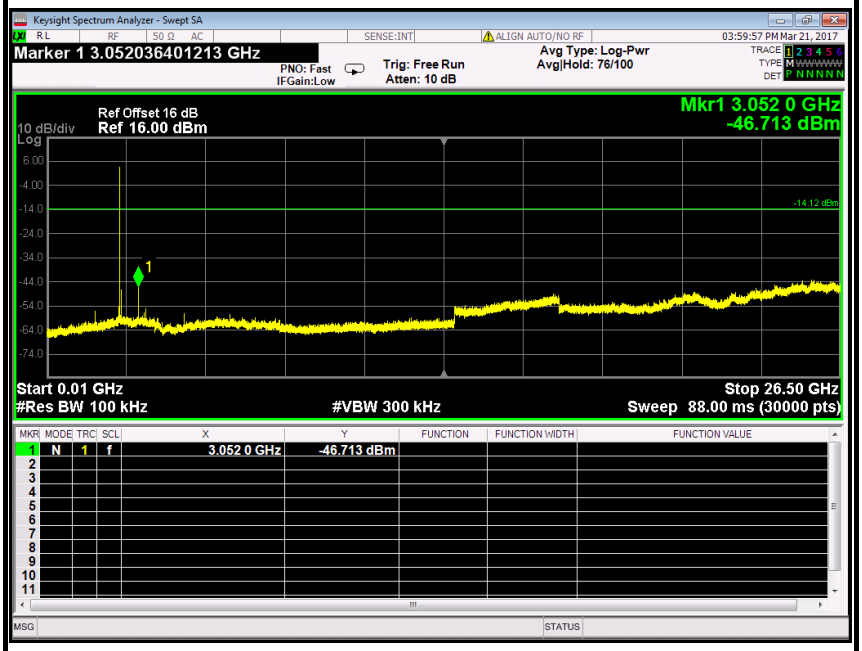
CH Low (10MHz ~26.5GHz)

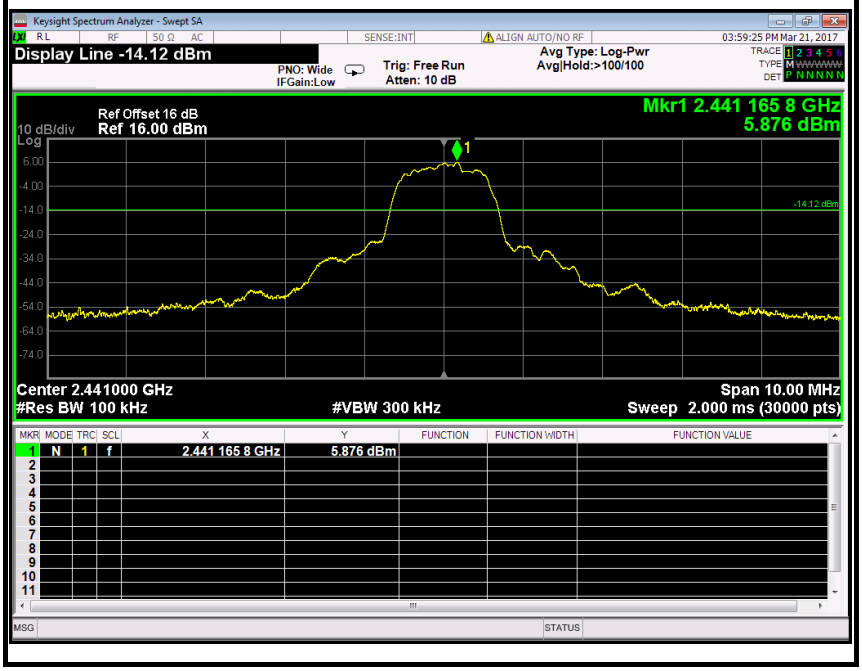


CH Low (2.31GHz ~2.41GHz)

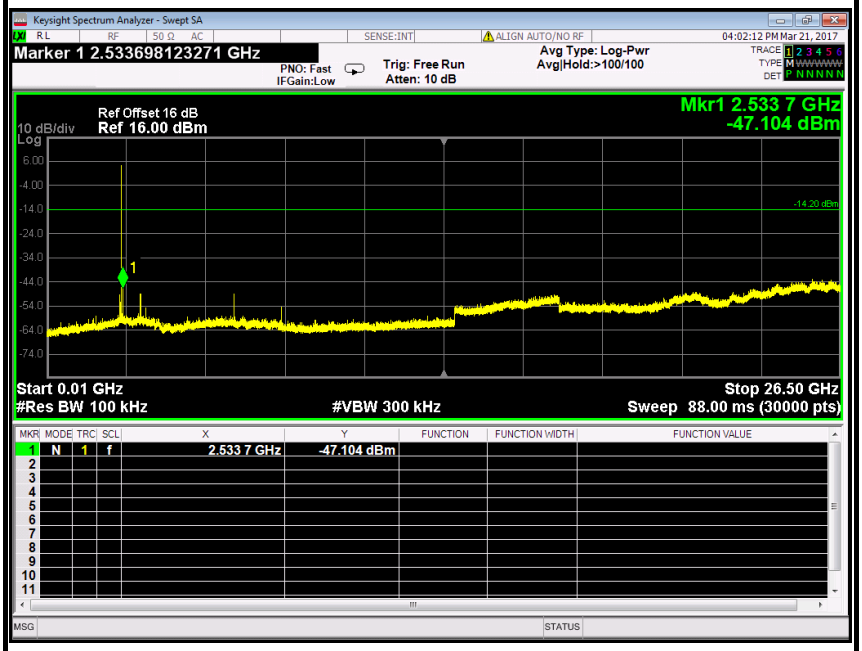


CH Mid (10MHz ~26.5GHz)

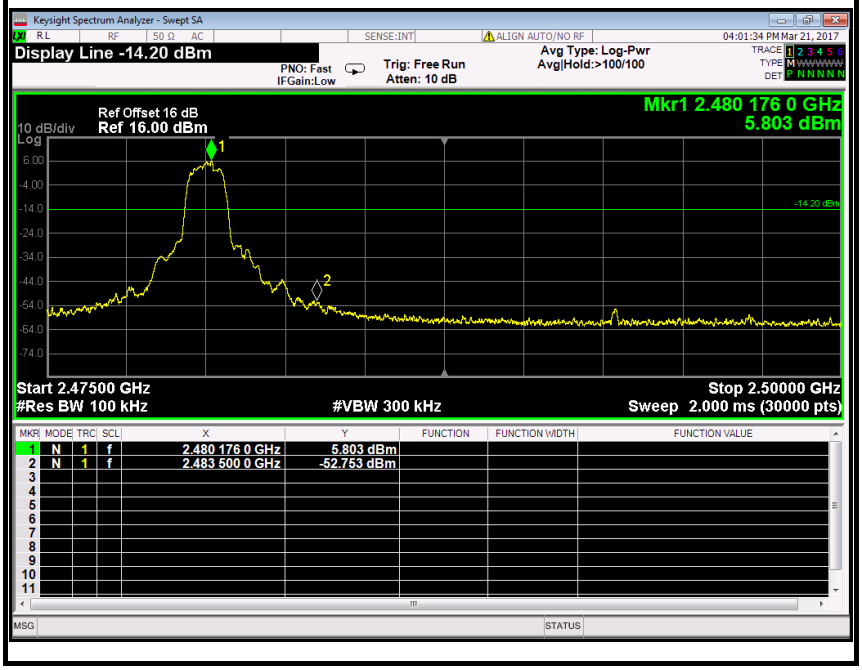




CH High (10MHz ~26.5GHz)



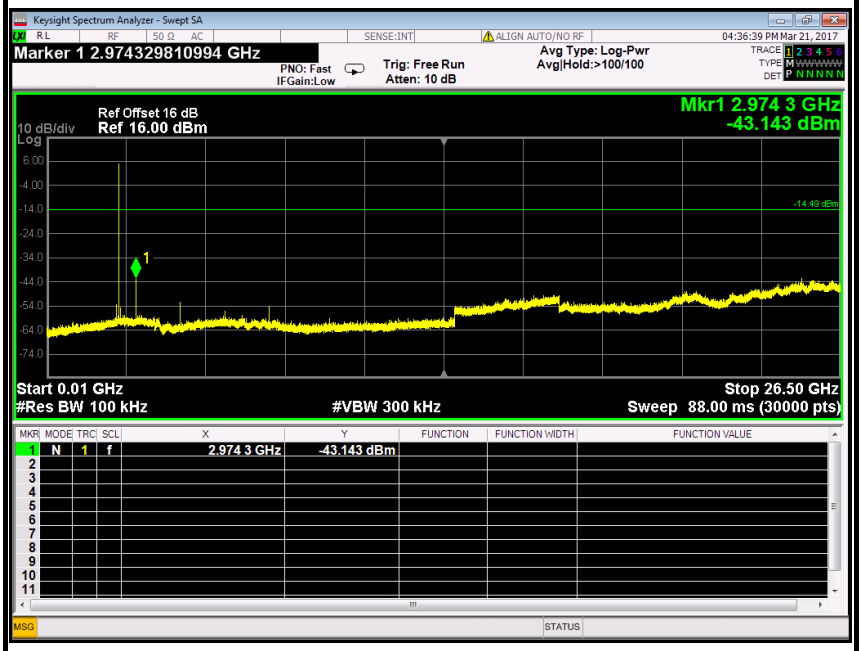
CH High (2.475GHz ~ 2.5GHz)



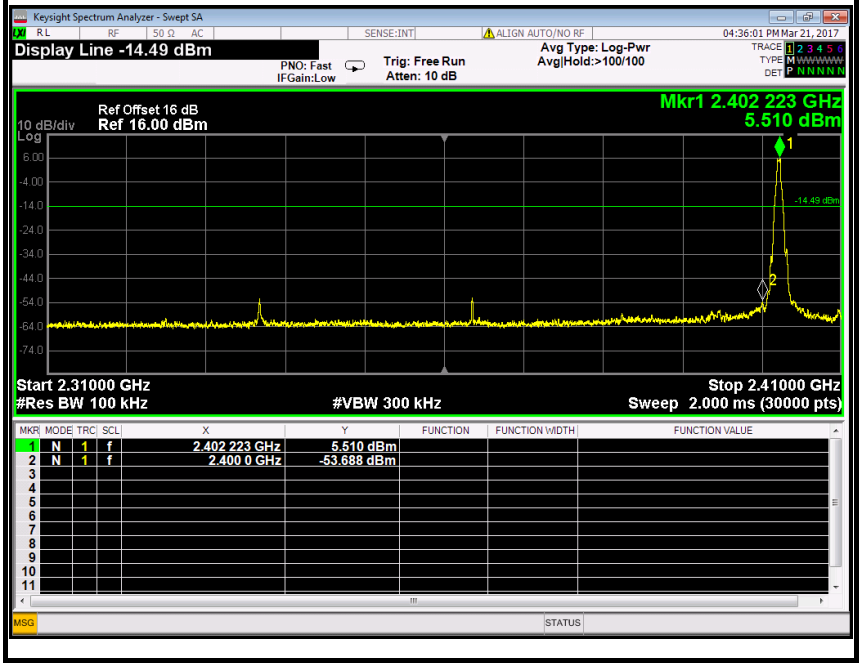
Antenna 2 Test Plot

GFSK

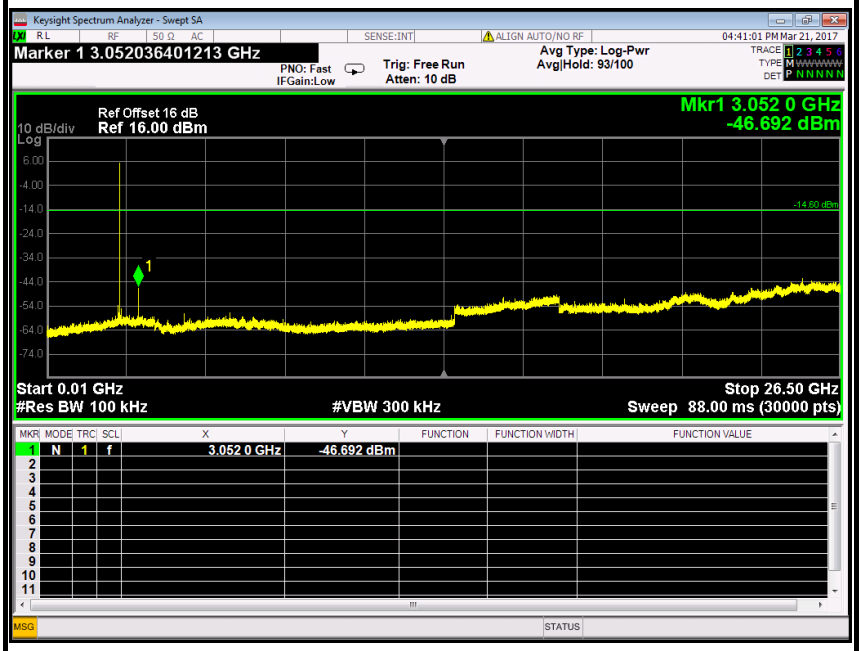
CH Low (10MHz ~26.5GHz)

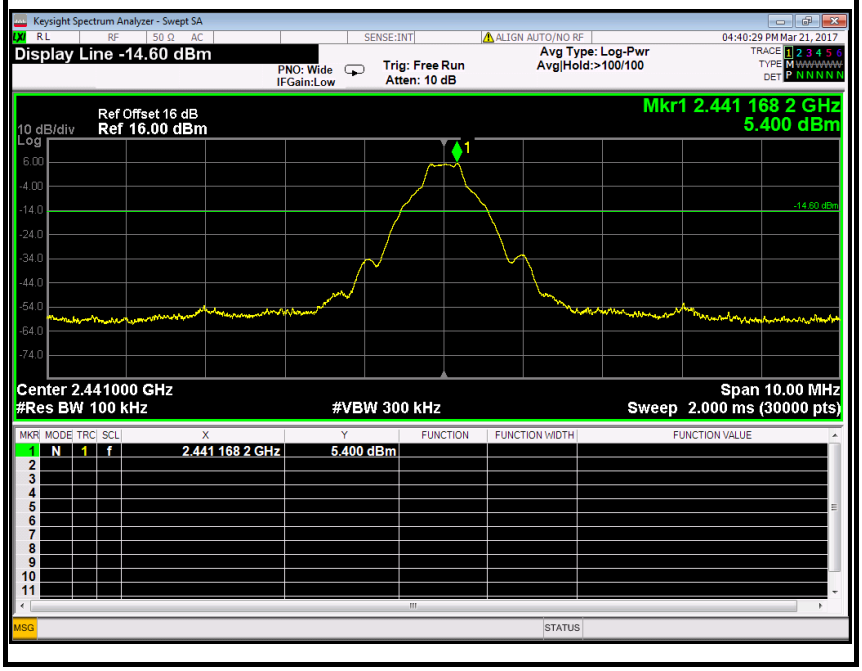


CH Low (2.31GHz ~2.41GHz)

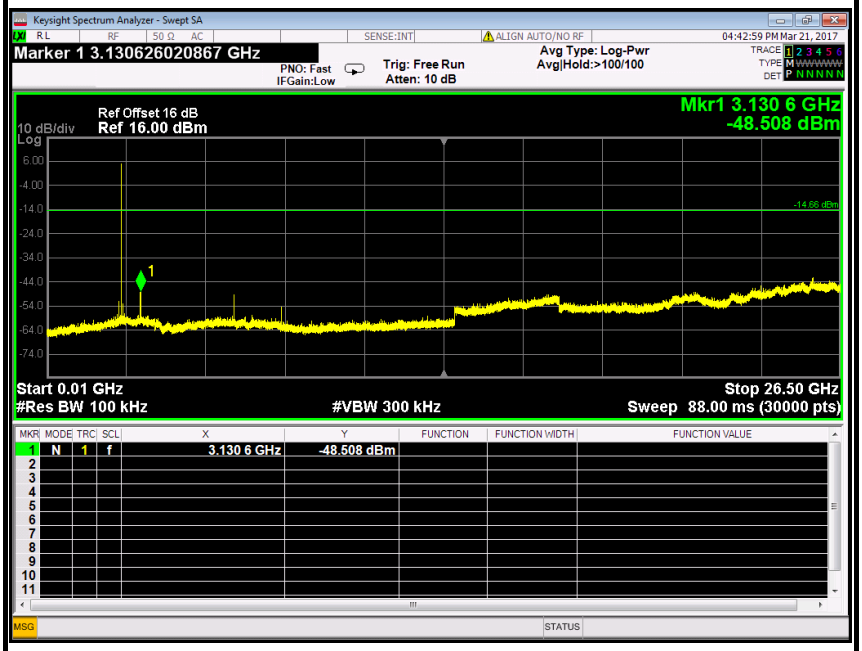


CH Mid (10MHz ~26.5GHz)

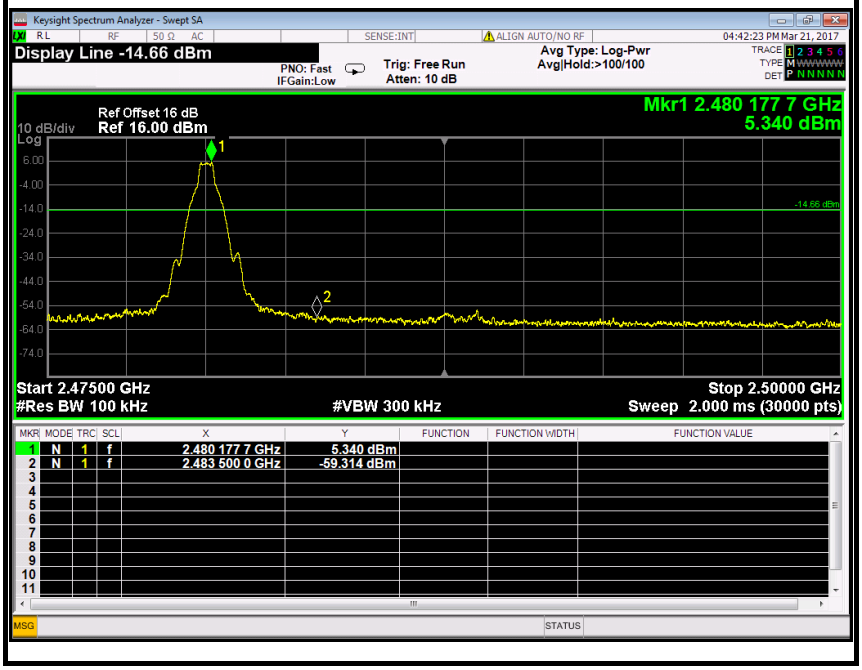




CH High (10MHz ~26.5GHz)

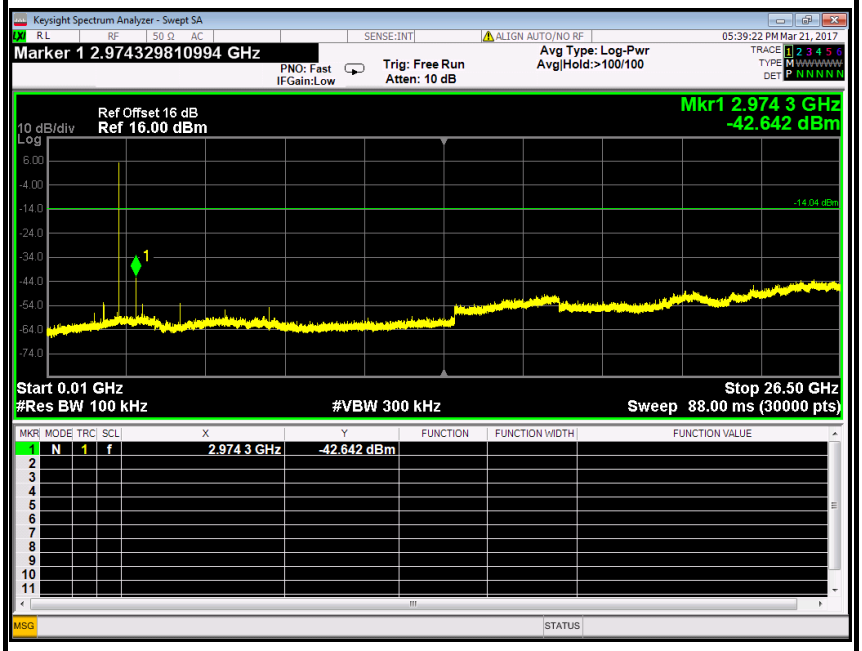


CH High (2.475GHz ~ 2.5GHz)

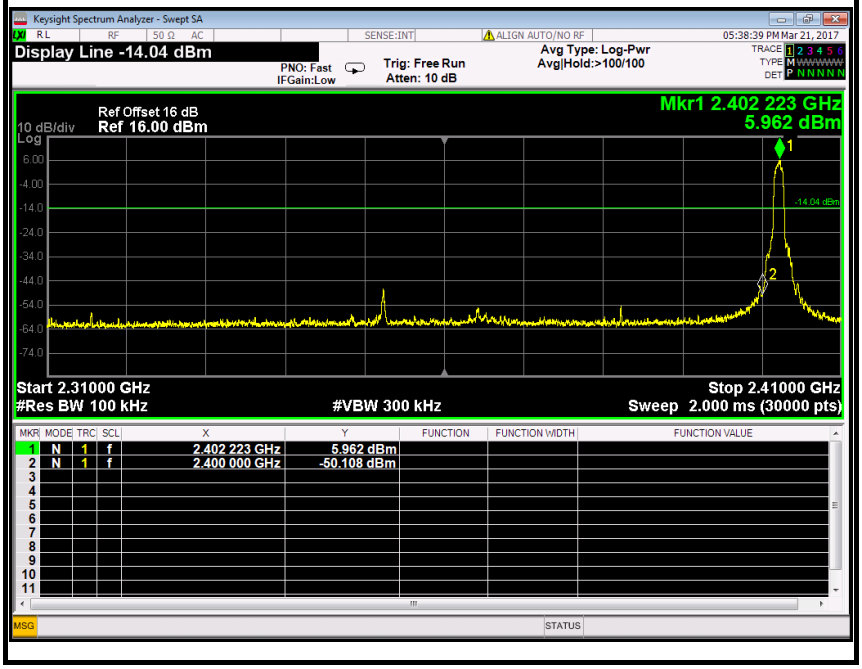


8DPSK

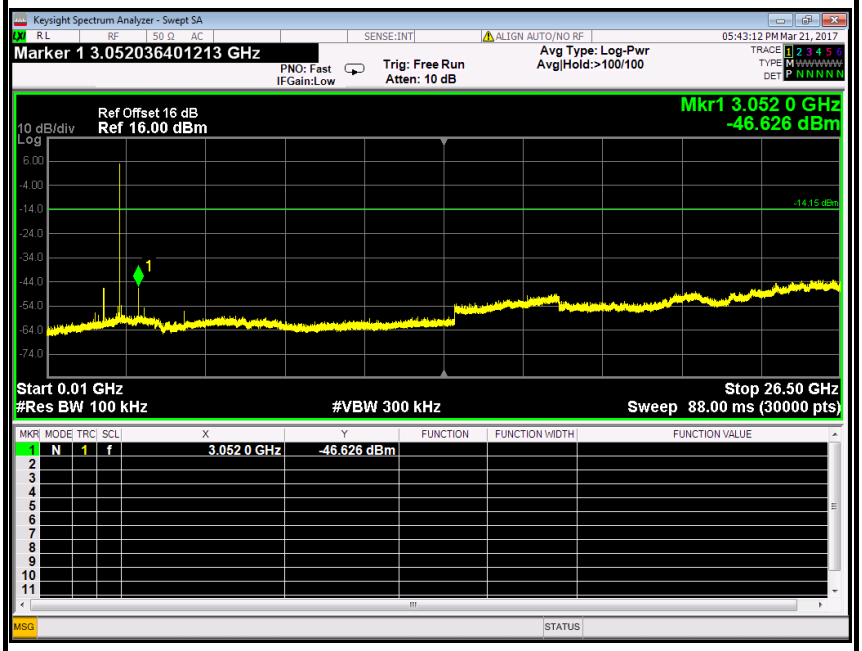
CH Low (10MHz ~26.5GHz)

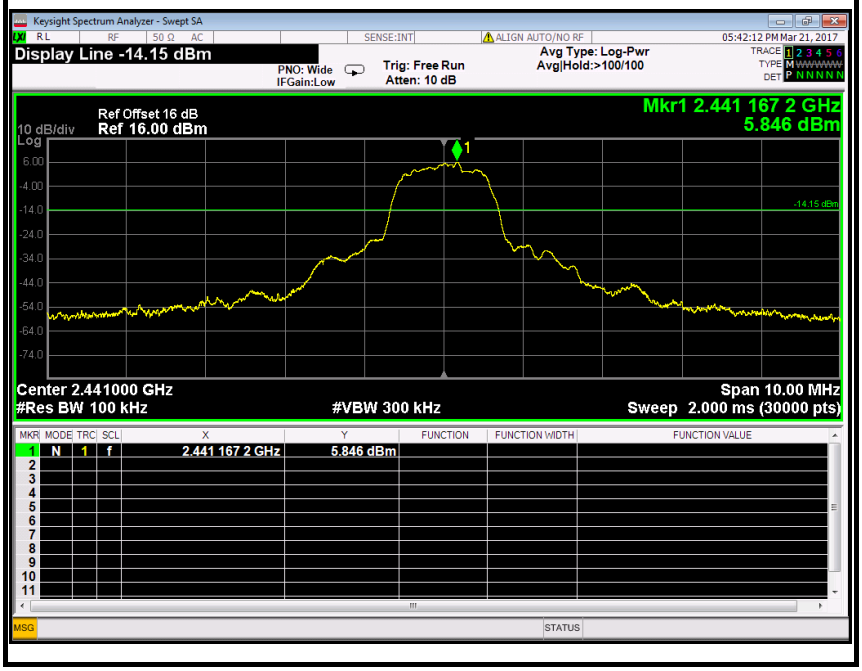


CH Low (2.31GHz ~2.41GHz)

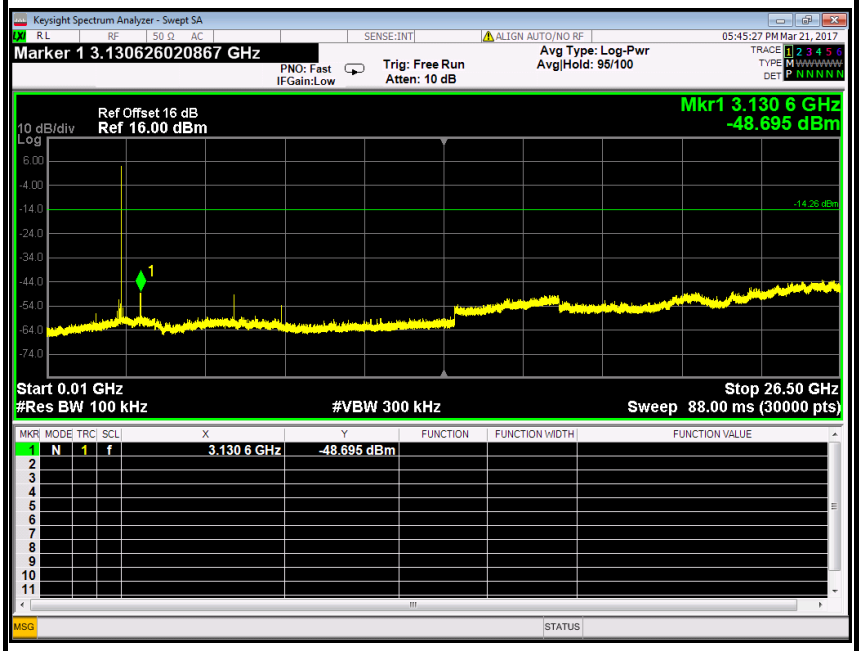


CH Mid (10MHz ~26.5GHz)

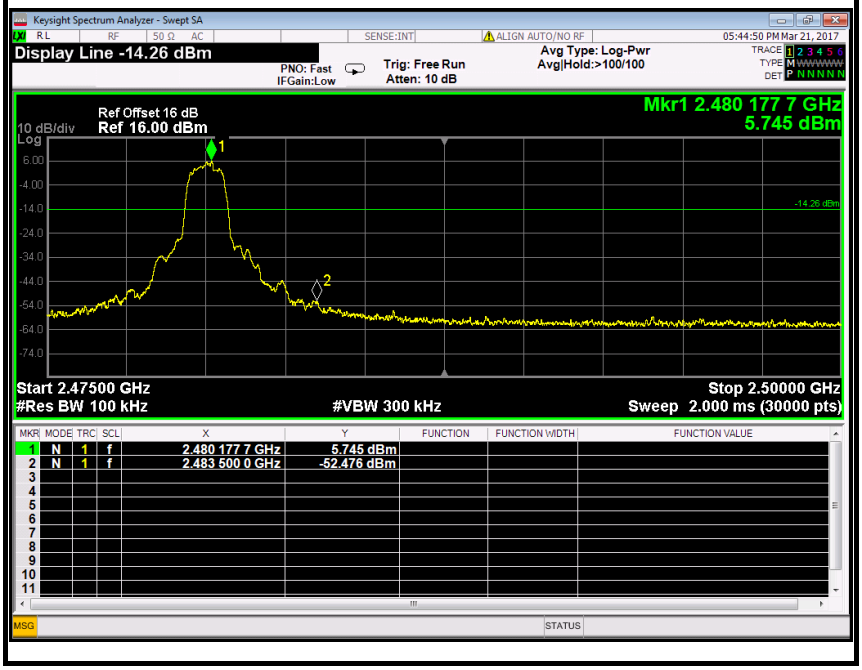




CH High (10MHz ~26.5GHz)



CH High (2.475GHz ~ 2.5GHz)

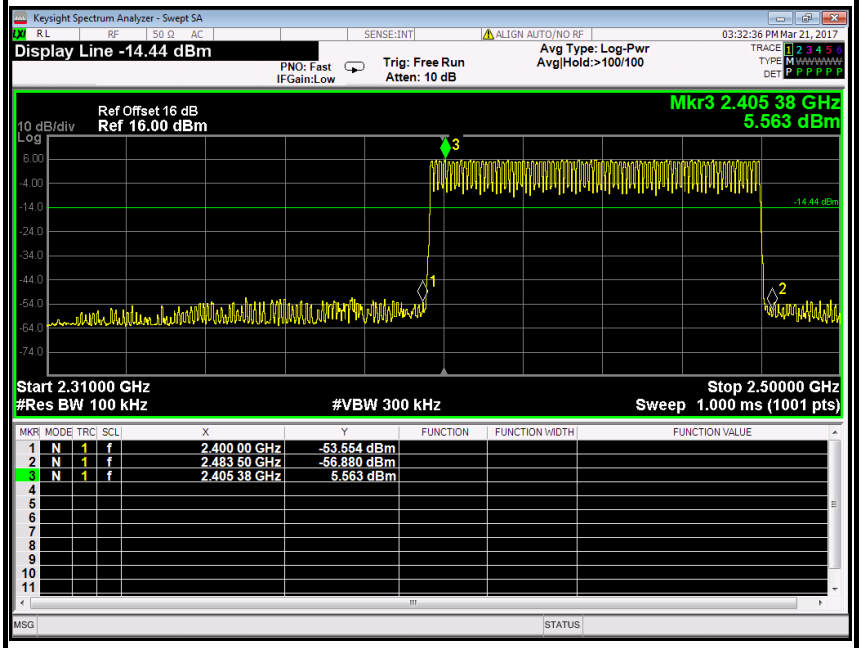


Hopping On

Antenna 1 Test Data

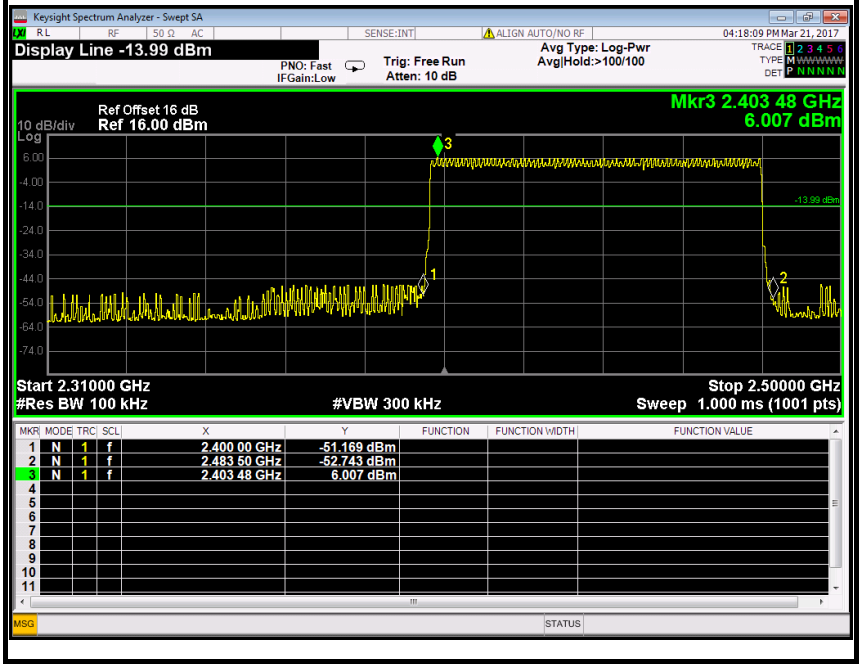
GFSK

CH Low (2.31GHz ~2.5GHz)



8DPSK

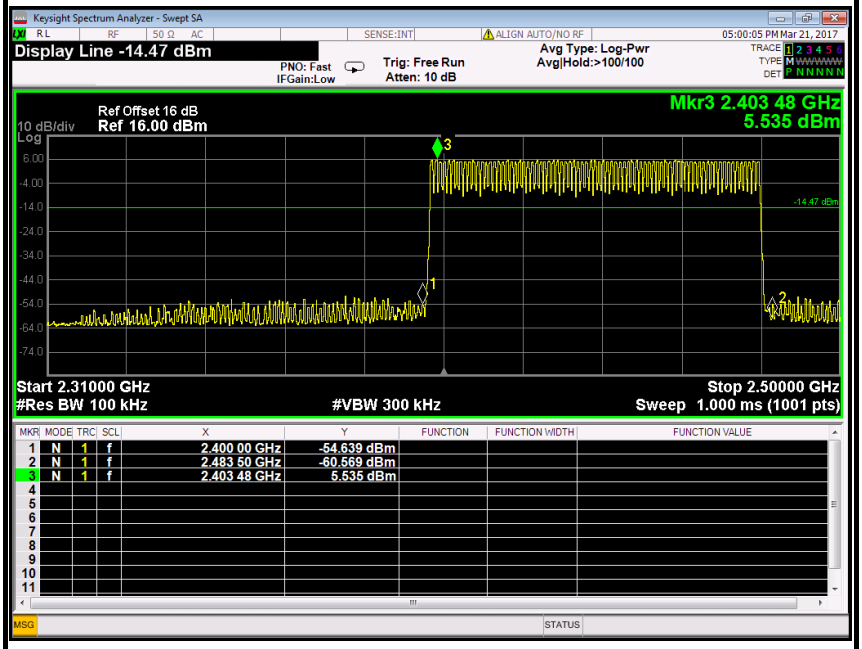
CH Low (2.31GHz ~2.5GHz)



Antenna 2 Test Data

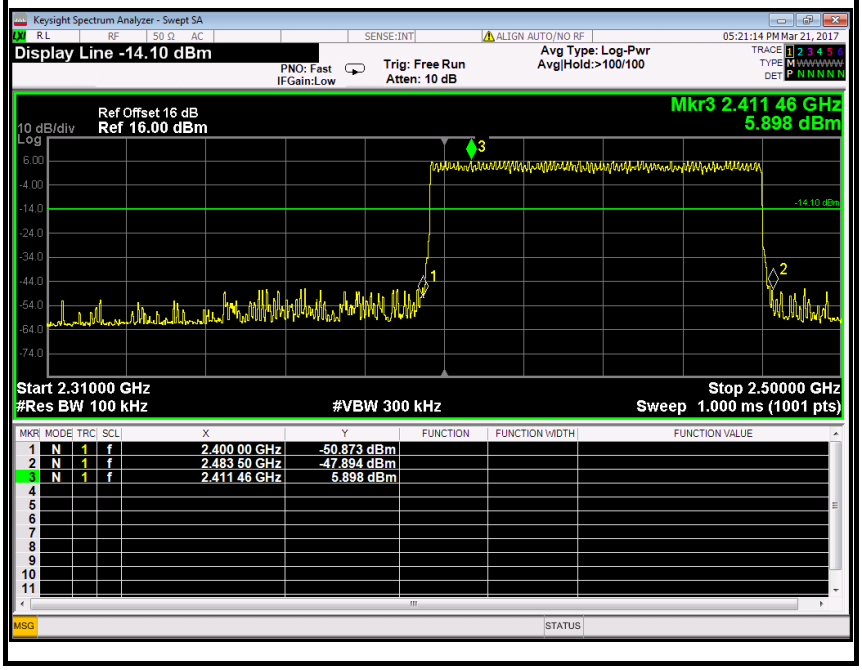
GFSK

CH Low (2.31GHz ~2.5GHz)



8DPSK

CH Low (2.31GHz ~2.5GHz)



6.9.2. Radiated Emissions

LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Note: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

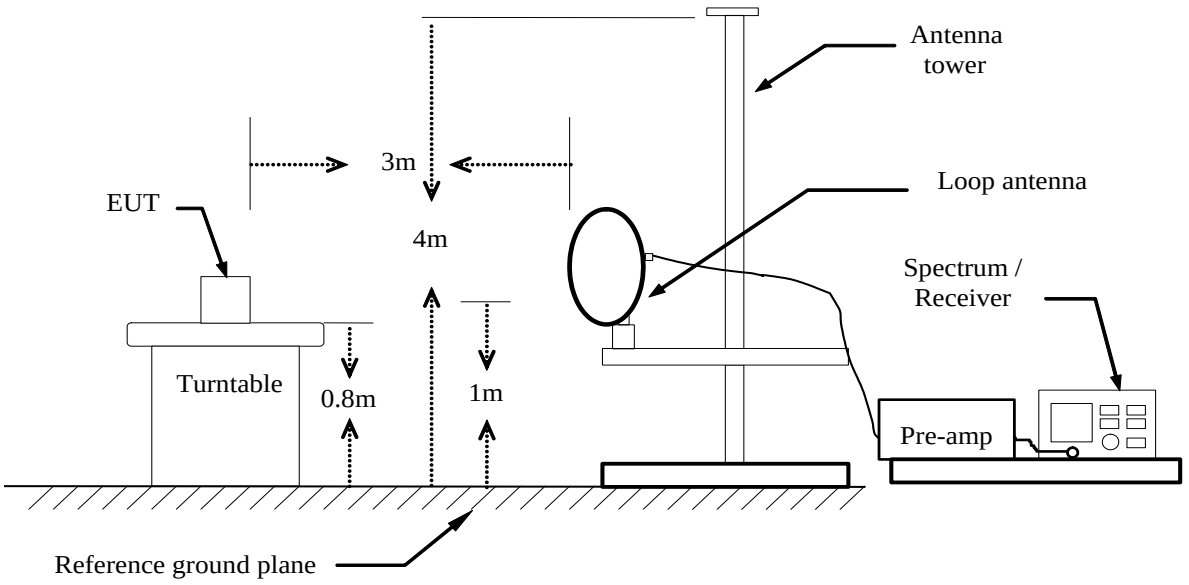
MEASUREMENT EQUIPMENT USED

Radiated Emission Test Site 966（2）					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	02/21/2017	02/20/2018
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/21/2017	02/20/2018
Amplifier	EMEC	EM330	060661	03/18/2017	03/17/2018
High Noise Amplifier	Agilent	8449B	3008A01838	02/21/2017	02/20/2018
Loop Antenna	COM-POWER	AL-130	121044	09/25/2016	09/24/2017
Bilog Antenna	SCHAFFNER	CBL6143	5082	02/21/2017	02/20/2018
Horn Antenna	SCHWARZBECK	BBHA9120	D286	02/28/2017	02/27/2018
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	02/28/2017	02/27/2018
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/21/2017	02/20/2018
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

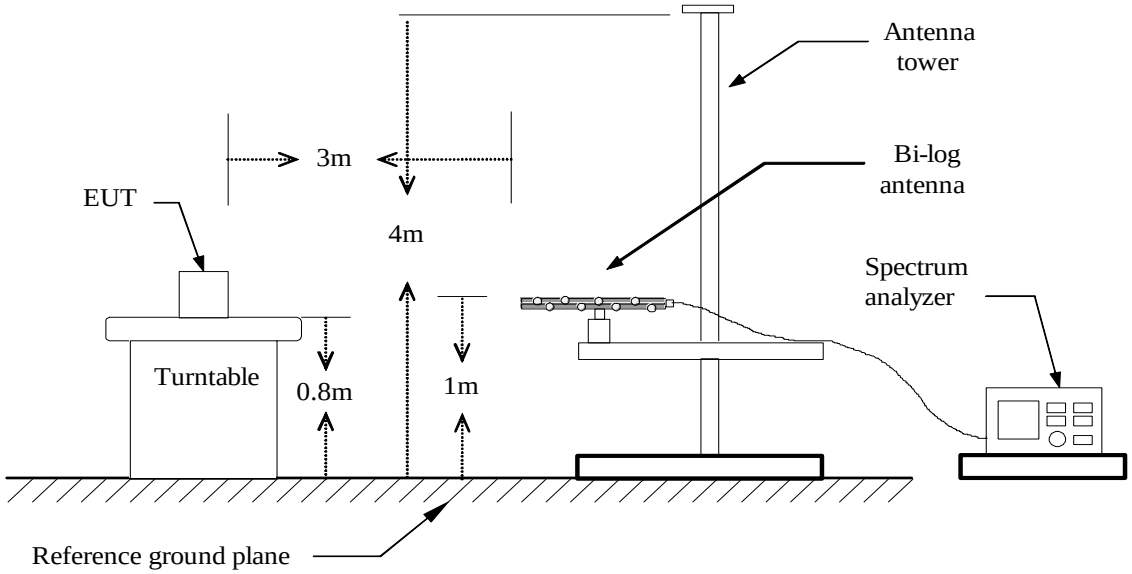
Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration

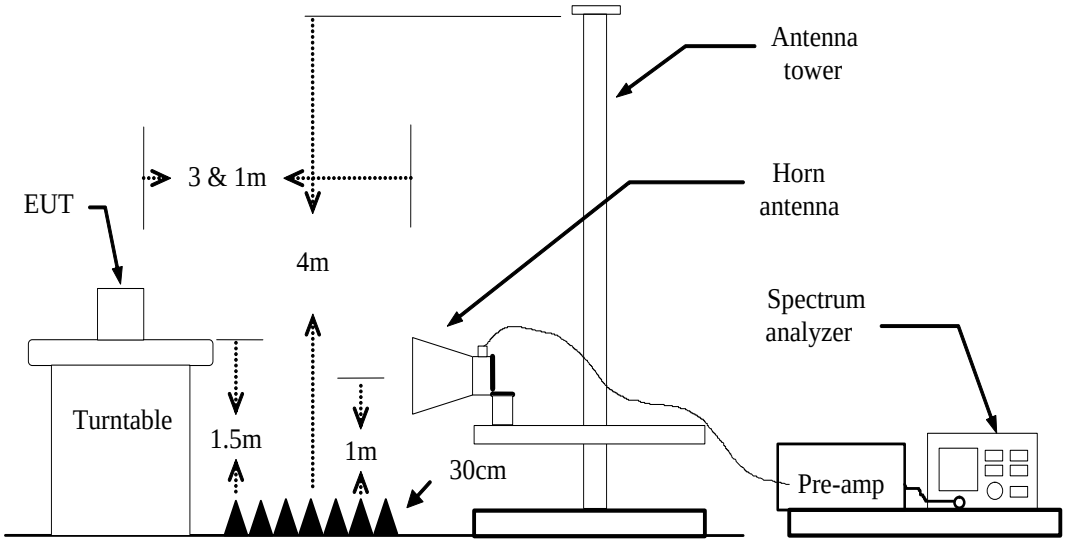
Below 30MHz



Below 1 GHz



Above 1 GHz



MEASURING SETTING

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

TEST PROCEDURE

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the

maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Pre measurement:

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

TEST RESULTS

Below 1 GHz

Antenna 1

Test Mode: TX / GFSK (CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
30.9700	38.25	-12.22	26.03	40.00	-13.97	V	QP
73.6500	50.74	-26.06	24.68	40.00	-15.32	V	QP
359.8000	47.75	-17.41	30.34	46.00	-15.66	V	QP
431.5800	48.62	-15.60	33.02	46.00	-12.98	V	QP
599.3900	40.89	-12.88	28.01	46.00	-17.99	V	QP
909.7900	34.99	-9.59	25.40	46.00	-20.60	V	QP
44.5500	50.30	-18.79	31.51	40.00	-8.49	H	QP
272.5000	55.91	-20.47	35.44	46.00	-10.56	H	QP
312.2700	53.37	-19.12	34.25	46.00	-11.75	H	QP
409.2700	49.94	-15.64	34.30	46.00	-11.70	H	QP
712.8800	37.24	-11.89	25.35	46.00	-20.65	H	QP
960.2300	38.01	-8.69	29.32	54.00	-24.68	H	QP

***Remark:** 1. No emission found between lowest internal used/generated frequency to 30MHz.*
2. Pre-scan all mode and recorded the worst case results in this report (TX-Low Channel(1Mbps).

Notes:

1. Measuring frequencies from 9kHz to the 1GHz.

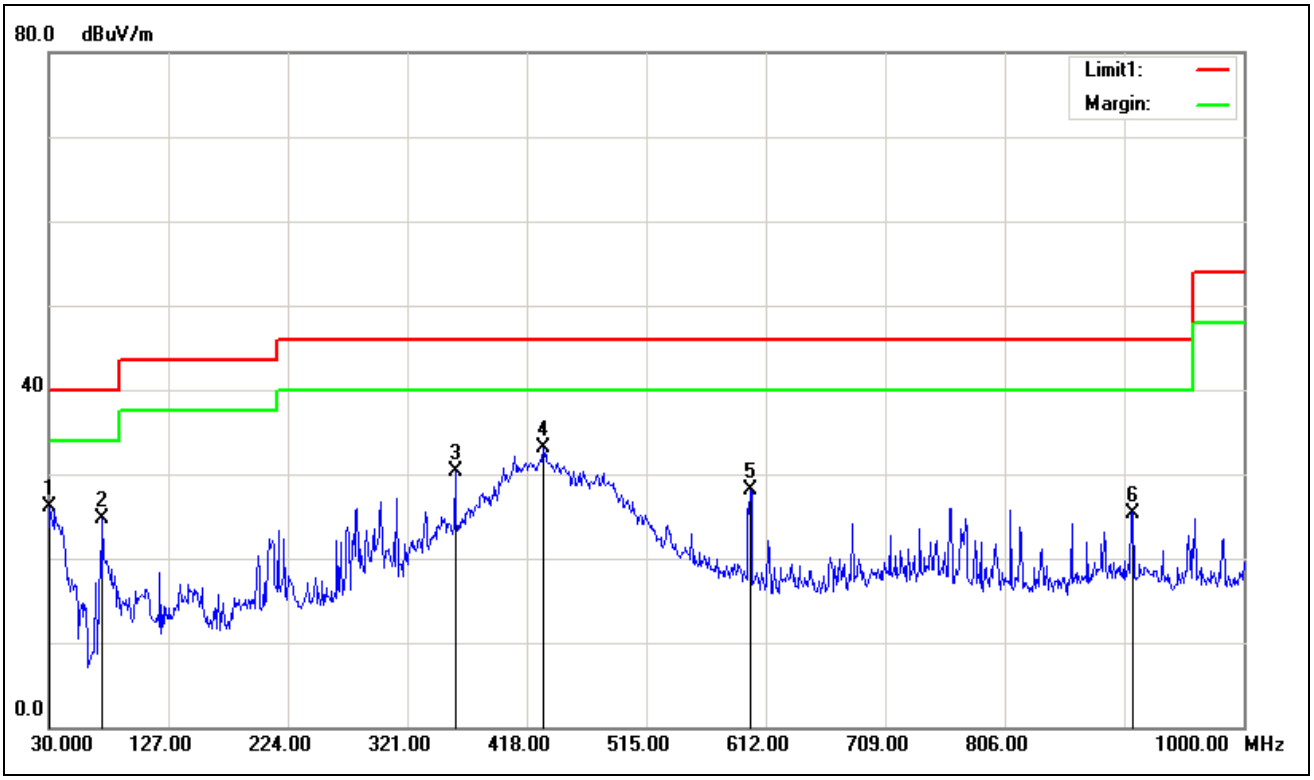
2. Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.

3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

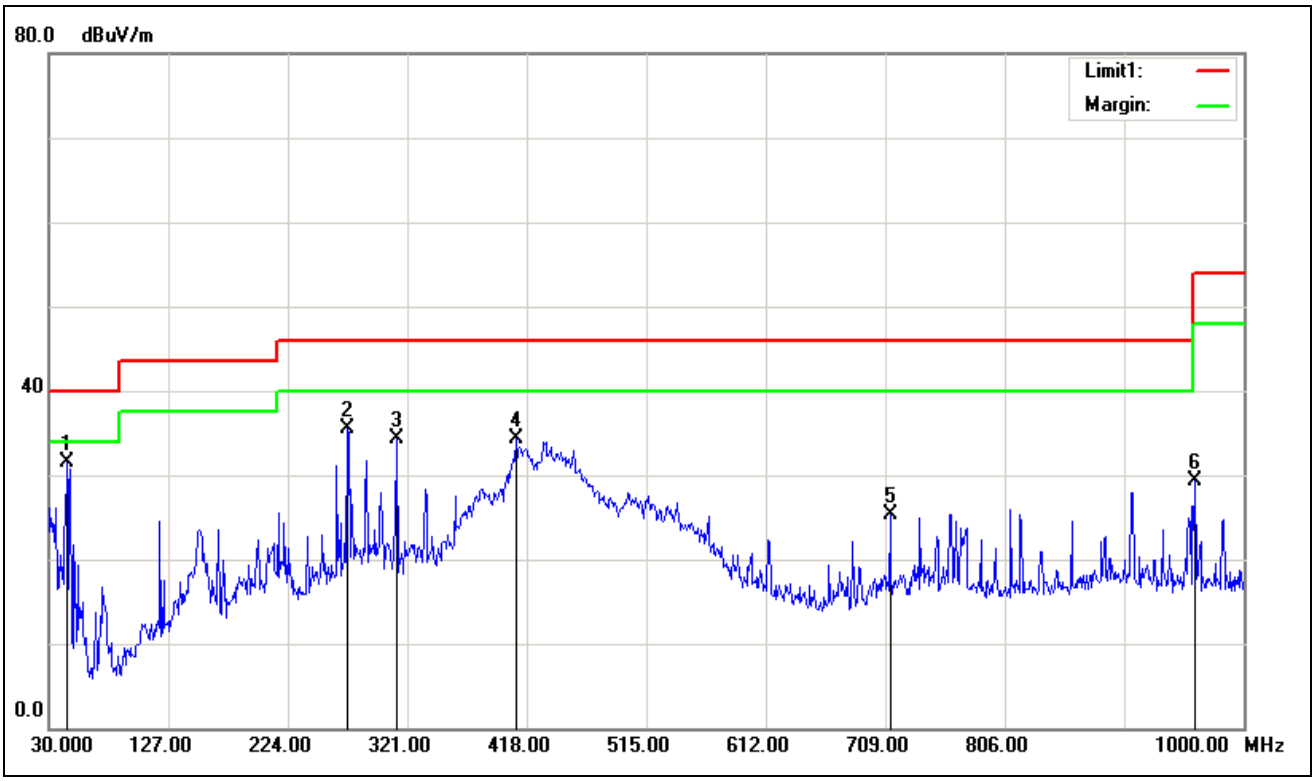
4. The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.

5. Frequency (MHz). = Emission frequency in MHz
Reading (dBuV) = Receiver reading
Correction Factor(dB/m) = Antenna factor + Cable loss – Amplifier gain
Actual FS (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin(dB) = Measured (dBuV/m) – Limits (dBuV/m)
Antenna Pole(V/H) = Current carrying line of reading

Vertical



Horizontal



Antenna 2

Test Mode: TX / GFSK (CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
73.6500	49.06	-26.06	23.00	40.00	-17.00	V	QP
221.0900	43.58	-20.51	23.07	46.00	-22.93	V	QP
312.2700	46.66	-19.12	27.54	46.00	-18.46	V	QP
431.5800	48.10	-15.60	32.50	46.00	-13.50	V	QP
600.3600	37.90	-12.86	25.04	46.00	-20.96	V	QP
762.3500	37.31	-11.05	26.26	46.00	-19.74	V	QP
45.5200	53.17	-19.12	34.05	40.00	-5.95	H	QP
120.2100	46.28	-21.13	25.15	43.50	-18.35	H	QP
273.4700	55.62	-20.46	35.16	46.00	-10.84	H	QP
312.2700	53.13	-19.12	34.01	46.00	-11.99	H	QP
455.8300	49.35	-15.30	34.05	46.00	-11.95	H	QP
909.7900	37.94	-9.59	28.35	46.00	-17.65	H	QP

***Remark:** 1. No emission found between lowest internal used/generated frequency to 30MHz.*
2. Pre-scan all mode and recorded the worst case results in this report (TX-Low Channel(1Mbps).

Notes:

1. Measuring frequencies from 9kHz to the 1GHz.

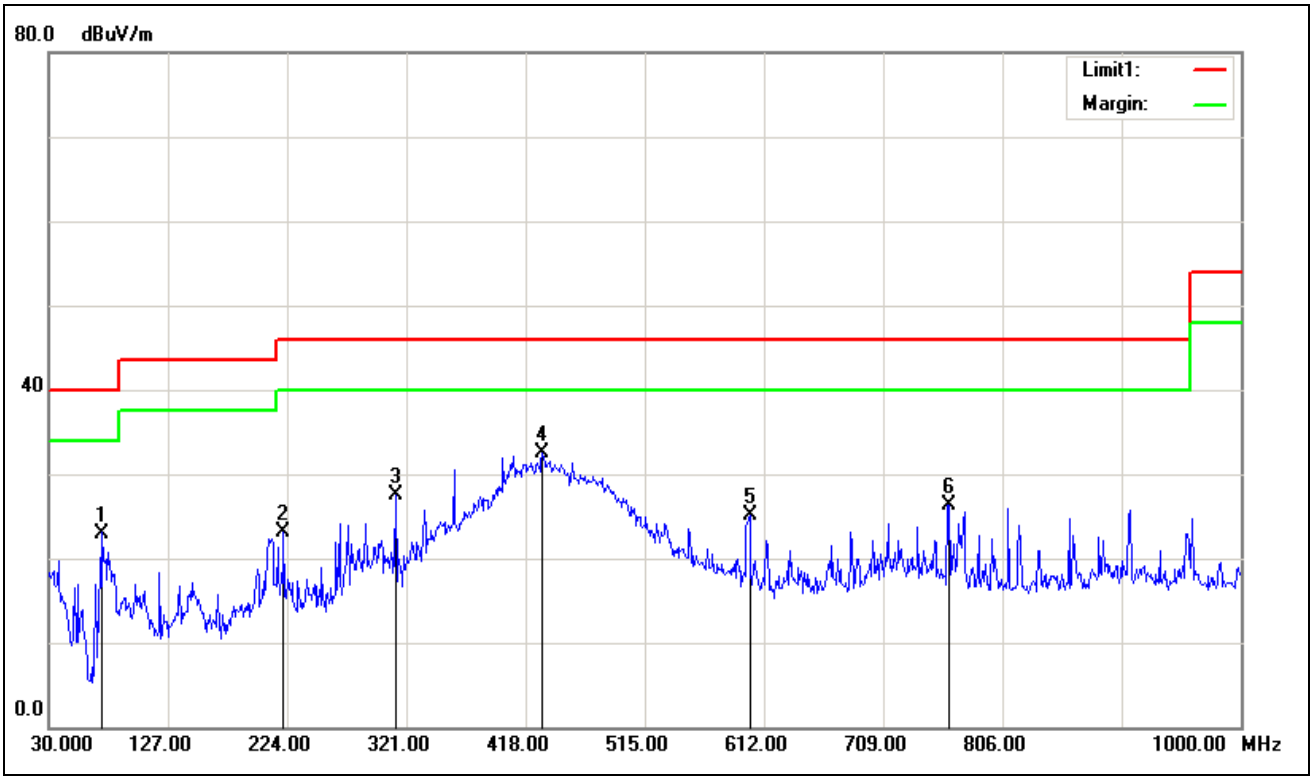
2. Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.

3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

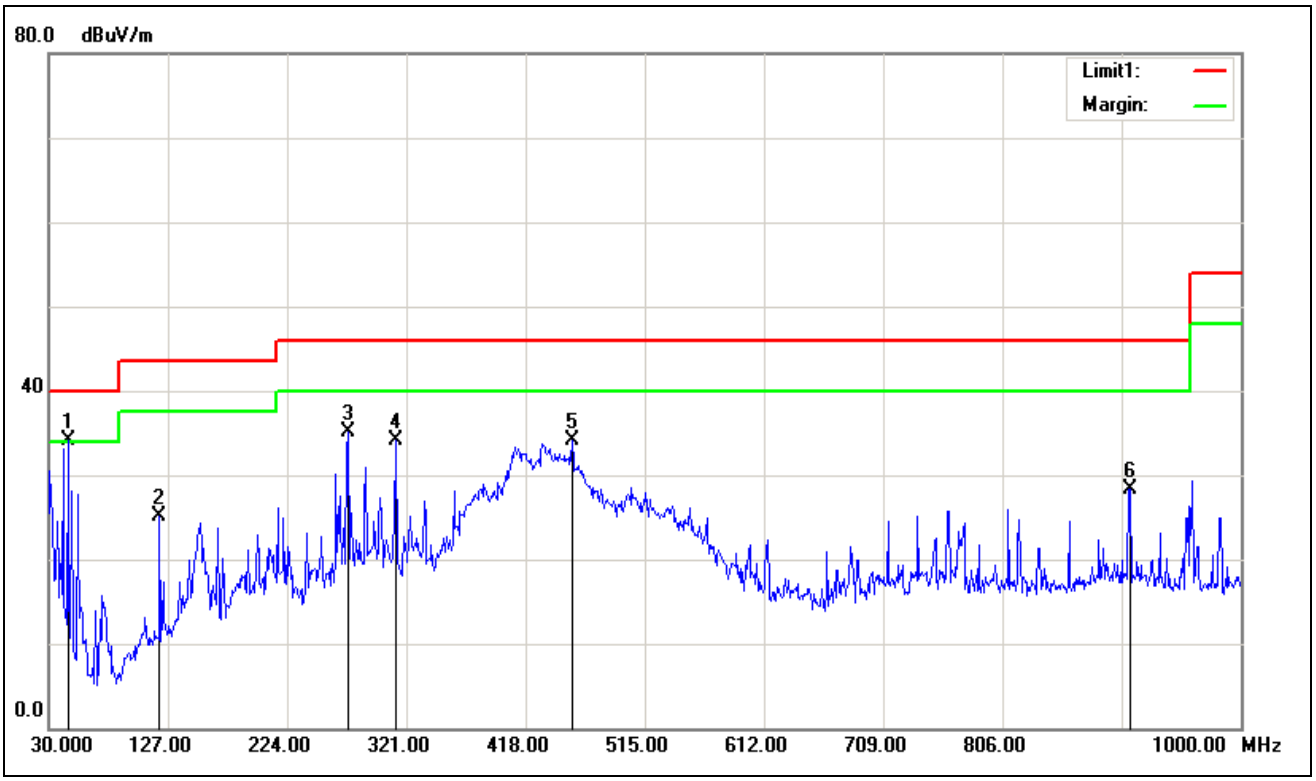
4. The IF bandwidth of SPA between 30MHz to 1GHz was 120kHz.

5. Frequency (MHz). = Emission frequency in MHz
Reading (dBuV) = Receiver reading
Correction Factor(dB/m) = Antenna factor + Cable loss – Amplifier gain
Actual FS (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin(dB) = Measured (dBuV/m) – Limits (dBuV/m)
Antenna Pole(V/H) = Current carrying line of reading

Vertical



Horizontal



Above 1 GHz
Antenna 1
GFSK

Test Mode: TX(CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
2242.000	47.72	-3.67	44.05	74.00	-29.95	V	peak
2557.000	46.99	-2.16	44.83	74.00	-29.17	V	peak
2971.000	46.63	-1.41	45.22	74.00	-28.78	V	peak
4249.000	44.47	2.47	46.94	74.00	-27.06	V	peak
4636.000	43.73	3.79	47.52	74.00	-26.48	V	peak
5338.000	42.82	5.58	48.40	74.00	-25.60	V	peak
1315.000	49.19	-7.37	41.82	74.00	-32.18	H	Peak
2494.000	45.90	-2.29	43.61	74.00	-30.39	H	Peak
3376.000	44.95	-0.73	44.22	74.00	-29.78	H	Peak
4150.000	43.44	2.12	45.56	74.00	-28.44	H	peak
5104.000	42.73	5.17	47.90	74.00	-26.10	H	peak
5356.000	43.03	5.61	48.64	74.00	-25.36	H	peak

Notes:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
   b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.
5. *Frequency (MHz) = Emission frequency in MHz*

Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading

Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Limit (dBμV/m) = Limit stated in standard

Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)

Pk = Peak Reading

AV. = Average Reading

Remark = Mark Peak Reading or Average Reading

Test Mode: TX(CH Mid) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1198.000	50.85	-7.80	43.05	74.00	-30.95	V	peak
1594.000	48.58	-6.71	41.87	74.00	-32.13	V	peak
2125.000	46.92	-4.31	42.61	74.00	-31.39	V	peak
2494.000	46.49	-2.29	44.20	74.00	-29.80	V	peak
3052.000	45.95	-1.27	44.68	74.00	-29.32	V	peak
4501.000	43.04	3.35	46.39	74.00	-27.61	V	peak
1198.000	49.62	-7.80	41.82	74.00	-32.18	H	Peak
1954.000	46.69	-5.29	41.40	74.00	-32.60	H	Peak
2494.000	47.10	-2.29	44.81	74.00	-29.19	H	Peak
3052.000	46.42	-1.27	45.15	74.00	-28.85	H	peak
4159.000	44.22	2.15	46.37	74.00	-27.63	H	peak
4825.000	42.22	4.41	46.63	74.00	-27.37	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH High) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1603.000	49.59	-6.69	42.90	74.00	-31.10	V	peak
2233.000	47.01	-3.72	43.29	74.00	-30.71	V	peak
2539.000	48.08	-2.19	45.89	74.00	-28.11	V	peak
3727.000	45.09	0.44	45.53	74.00	-28.47	V	peak
4636.000	43.97	3.79	47.76	74.00	-26.24	V	peak
5095.000	43.01	5.15	48.16	74.00	-25.84	V	peak
1306.000	48.31	-7.40	40.91	74.00	-33.09	H	Peak
2233.000	48.23	-3.72	44.51	74.00	-29.49	H	Peak
2809.000	46.29	-1.70	44.59	74.00	-29.41	H	Peak
3763.000	44.29	0.59	44.88	74.00	-29.12	H	peak
4321.000	43.94	2.72	46.66	74.00	-27.34	H	peak
5554.000	42.54	5.89	48.43	74.00	-25.57	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

8DPSK

Test Mode: TX(CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1252.000	48.33	-7.60	40.73	74.00	-33.27	V	peak
2539.000	46.47	-2.19	44.28	74.00	-29.72	V	peak
2809.000	45.82	-1.70	44.12	74.00	-29.88	V	peak
3367.000	44.63	-0.74	43.89	74.00	-30.11	V	peak
3772.000	43.85	0.63	44.48	74.00	-29.52	V	peak
4672.000	43.58	3.91	47.49	74.00	-26.51	V	peak
1252.000	49.60	-7.60	42.00	74.00	-32.00	H	Peak
2143.000	47.00	-4.22	42.78	74.00	-31.22	H	Peak
2521.000	47.20	-2.22	44.98	74.00	-29.02	H	Peak
3070.000	45.24	-1.24	44.00	74.00	-30.00	H	peak
3763.000	44.57	0.59	45.16	74.00	-28.84	H	peak
4852.000	43.32	4.50	47.82	74.00	-26.18	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz

Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading

Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Limit (dBμV/m) = Limit stated in standard

Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)

Pk = Peak Reading

AV. = Average Reading

Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH Mid) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1054.000	50.93	-8.35	42.58	74.00	-31.42	V	peak
2242.000	45.99	-3.67	42.32	74.00	-31.68	V	peak
2530.000	46.31	-2.21	44.10	74.00	-29.90	V	peak
3052.000	45.52	-1.27	44.25	74.00	-29.75	V	peak
4339.000	42.72	2.78	45.50	74.00	-28.50	V	peak
5698.000	43.04	5.95	48.99	74.00	-25.01	V	peak
1198.000	49.69	-7.80	41.89	74.00	-32.11	H	Peak
2512.000	46.45	-2.24	44.21	74.00	-29.79	H	Peak
3052.000	45.84	-1.27	44.57	74.00	-29.43	H	Peak
3727.000	44.28	0.44	44.72	74.00	-29.28	H	peak
4789.000	42.98	4.29	47.27	74.00	-26.73	H	peak
5482.000	42.02	5.84	47.86	74.00	-26.14	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH High) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1270.000	48.55	-7.53	41.02	74.00	-32.98	V	peak
2233.000	46.42	-3.72	42.70	74.00	-31.30	V	peak
2512.000	48.08	-2.24	45.84	74.00	-28.16	V	peak
3340.000	44.61	-0.79	43.82	74.00	-30.18	V	peak
4663.000	43.57	3.88	47.45	74.00	-26.55	V	peak
5158.000	43.43	5.26	48.69	74.00	-25.31	V	peak
1306.000	49.12	-7.40	41.72	74.00	-32.28	H	Peak
2170.000	47.01	-4.07	42.94	74.00	-31.06	H	Peak
2485.000	46.95	-2.34	44.61	74.00	-29.39	H	Peak
3088.000	45.81	-1.21	44.60	74.00	-29.40	H	peak
4303.000	43.84	2.66	46.50	74.00	-27.50	H	peak
5176.000	43.75	5.29	49.04	74.00	-24.96	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

Antenna 2
GFSK

Test Mode: TX(CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1594.000	50.54	-6.71	43.83	74.00	-30.17	V	peak
2548.000	48.07	-2.17	45.90	74.00	-28.10	V	peak
2818.000	46.83	-1.69	45.14	74.00	-28.86	V	peak
2971.000	47.58	-1.41	46.17	74.00	-27.83	V	peak
4285.000	44.06	2.59	46.65	74.00	-27.35	V	peak
4987.000	46.11	4.94	51.05	74.00	-22.95	V	peak
1351.000	49.29	-7.24	42.05	74.00	-31.95	H	Peak
1954.000	47.99	-5.29	42.70	74.00	-31.30	H	Peak
2512.000	47.32	-2.24	45.08	74.00	-28.92	H	Peak
2971.000	47.43	-1.41	46.02	74.00	-27.98	H	peak
3655.000	44.87	0.13	45.00	74.00	-29.00	H	peak
4789.000	43.33	4.29	47.62	74.00	-26.38	H	peak

Notes:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. *Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.*
   b. *AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.*
5. *Frequency (MHz) = Emission frequency in MHz*

Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading

Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Limit (dBμV/m) = Limit stated in standard

Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)

Pk = Peak Reading

AV. = Average Reading

Remark = Mark Peak Reading or Average Reading

Test Mode: TX(CH Mid) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1198.000	49.81	-7.80	42.01	74.00	-31.99	V	peak
1594.000	49.54	-6.71	42.83	74.00	-31.17	V	peak
2521.000	46.23	-2.22	44.01	74.00	-29.99	V	peak
3052.000	45.70	-1.27	44.43	74.00	-29.57	V	peak
4348.000	43.17	2.81	45.98	74.00	-28.02	V	peak
5266.000	42.91	5.45	48.36	74.00	-25.64	V	peak
1351.000	48.66	-7.24	41.42	74.00	-32.58	H	Peak
2233.000	47.36	-3.72	43.64	74.00	-30.36	H	Peak
2494.000	46.83	-2.29	44.54	74.00	-29.46	H	Peak
3052.000	46.29	-1.27	45.02	74.00	-28.98	H	peak
4582.000	43.99	3.62	47.61	74.00	-26.39	H	peak
5410.000	43.03	5.71	48.74	74.00	-25.26	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH High) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1198.000	51.64	-7.80	43.84	74.00	-30.16	V	peak
1603.000	49.23	-6.69	42.54	74.00	-31.46	V	peak
2512.000	46.75	-2.24	44.51	74.00	-29.49	V	peak
3862.000	44.40	1.01	45.41	74.00	-28.59	V	peak
4555.000	44.10	3.53	47.63	74.00	-26.37	V	peak
5383.000	42.97	5.66	48.63	74.00	-25.37	V	peak
1198.000	50.28	-7.80	42.48	74.00	-31.52	H	Peak
2521.000	46.76	-2.22	44.54	74.00	-29.46	H	Peak
2827.000	46.24	-1.67	44.57	74.00	-29.43	H	Peak
3763.000	45.28	0.59	45.87	74.00	-28.13	H	peak
4600.000	43.97	3.68	47.65	74.00	-26.35	H	peak
5446.000	42.79	5.77	48.56	74.00	-25.44	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

8DPSK

Test Mode: TX(CH Low) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1603.000	50.66	-6.69	43.97	74.00	-30.03	V	peak
1198.000	51.02	-7.80	43.22	74.00	-30.78	V	peak
2521.000	46.56	-2.22	44.34	74.00	-29.66	V	peak
2971.000	45.85	-1.41	44.44	74.00	-29.56	V	peak
5329.000	43.06	5.57	48.63	74.00	-25.37	V	peak
3727.000	44.82	0.44	45.26	74.00	-28.74	V	peak
1198.000	50.27	-7.80	42.47	74.00	-31.53	H	Peak
2530.000	46.41	-2.21	44.20	74.00	-29.80	H	Peak
2971.000	47.03	-1.41	45.62	74.00	-28.38	H	Peak
3205.000	46.49	-1.02	45.47	74.00	-28.53	H	peak
3835.000	44.16	0.89	45.05	74.00	-28.95	H	peak
4582.000	43.28	3.62	46.90	74.00	-27.10	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz

Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading

Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain

Limit (dBμV/m) = Limit stated in standard

Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)

Pk = Peak Reading

AV. = Average Reading

Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH Mid) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1198.000	49.77	-7.80	41.97	74.00	-32.03	V	peak
1603.000	48.88	-6.69	42.19	74.00	-31.81	V	peak
2521.000	46.79	-2.22	44.57	74.00	-29.43	V	peak
3052.000	46.31	-1.27	45.04	74.00	-28.96	V	peak
4384.000	43.11	2.94	46.05	74.00	-27.95	V	peak
5464.000	42.52	5.81	48.33	74.00	-25.67	V	peak
1198.000	49.97	-7.80	42.17	74.00	-31.83	H	Peak
2494.000	46.58	-2.29	44.29	74.00	-29.71	H	Peak
3052.000	45.62	-1.27	44.35	74.00	-29.65	H	Peak
4402.000	44.45	3.01	47.46	74.00	-26.54	H	peak
4843.000	43.75	4.47	48.22	74.00	-25.78	H	peak
5401.000	43.05	5.69	48.74	74.00	-25.26	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

Test Mode: TX(CH High) **Tested by:** Jacksan Luo

Ambient temperature: 24°C **Relative humidity:** 52% RH **Date:** March 21, 2017

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
1198.000	51.40	-7.80	43.60	74.00	-30.40	V	peak
1603.000	51.09	-6.69	44.40	74.00	-29.60	V	peak
2503.000	46.86	-2.25	44.61	74.00	-29.39	V	peak
2800.000	46.04	-1.72	44.32	74.00	-29.68	V	peak
3889.000	43.83	1.12	44.95	74.00	-29.05	V	peak
5158.000	42.33	5.26	47.59	74.00	-26.41	V	peak
1198.000	49.28	-7.80	41.48	74.00	-32.52	H	Peak
1945.000	46.70	-5.35	41.35	74.00	-32.65	H	Peak
2521.000	46.07	-2.22	43.85	74.00	-30.15	H	Peak
2827.000	45.17	-1.67	43.50	74.00	-30.50	H	peak
4456.000	43.49	3.20	46.69	74.00	-27.31	H	peak
4888.000	43.07	4.61	47.68	74.00	-26.32	H	peak

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

4. Spectrum setting:

a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 3MHz, Sweep time = auto.
b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 360Hz, Sweep time = auto.

5. Frequency (MHz) = Emission frequency in MHz
Reading (dBμV/m) =Uncorrected Analyzer / Receiver Reading
Correction Factor (dB) = Antenna factor + Cable loss – Amplifier gain
Limit (dBμV/m) = Limit stated in standard
Margin (dB) = Result (dBμV/m)- Limit (dBμV/m)
Pk = Peak Reading
AV. = Average Reading
Remark = Mark Peak Reading or Average *Reading*

6.10 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

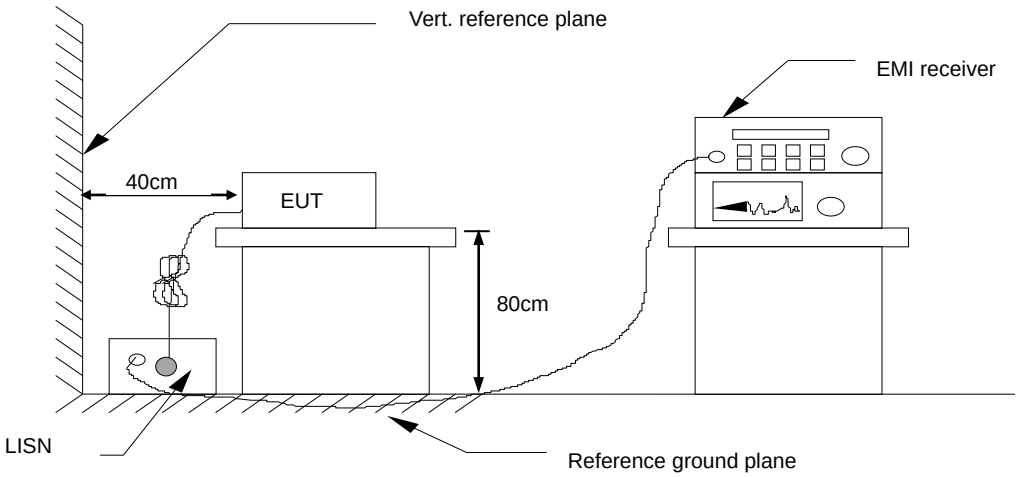
Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

MEASUREMENT EQUIPMENT USED

Conducted Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	02/11/2017	02/10/2018
LISN(EUT)	ROHDE&SCHWARZ	ENV216	101543-WX	02/11/2017	02/10/2018
LISN	EMCO	3825/2	8901-1459	02/12/2017	02/11/2018
Temp. / Humidity Meter	VICTOR	HTC-1	N/A	02/15/2017	02/14/2018
Test S/W	FARAD	EZ-EMC/ CCS-3A1-CE			

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

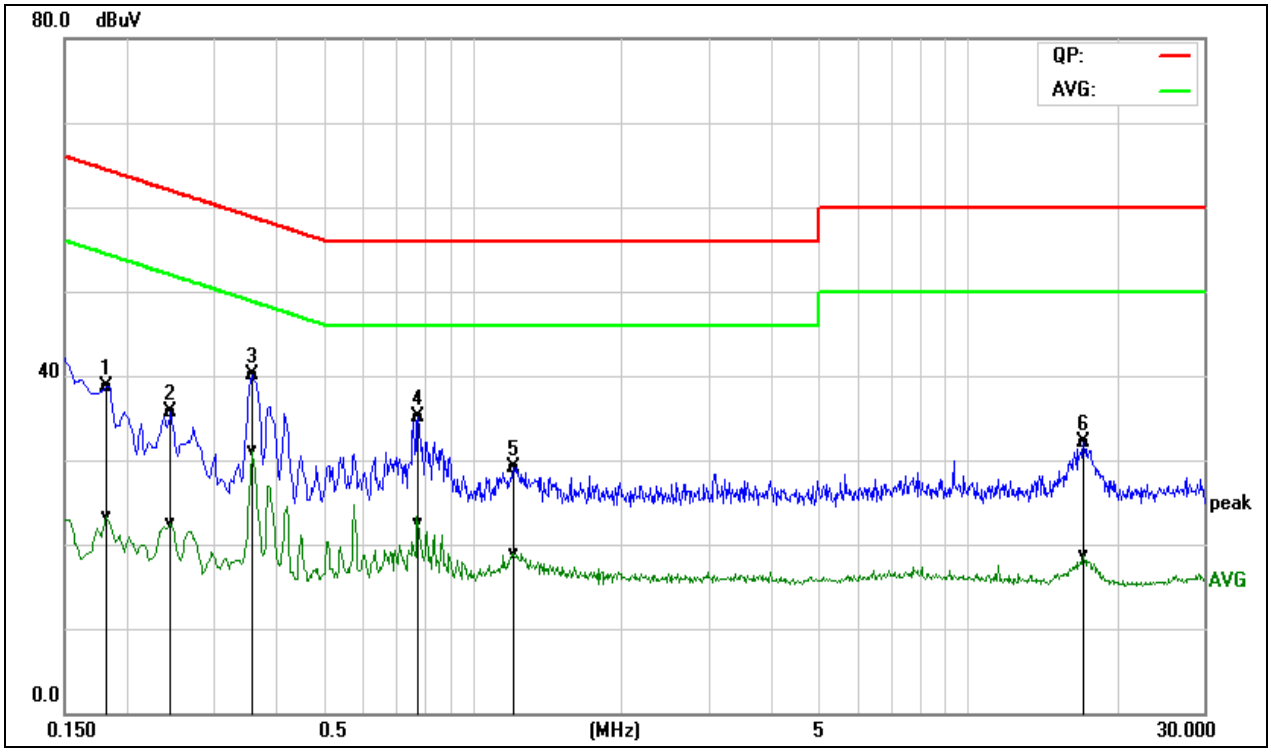
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

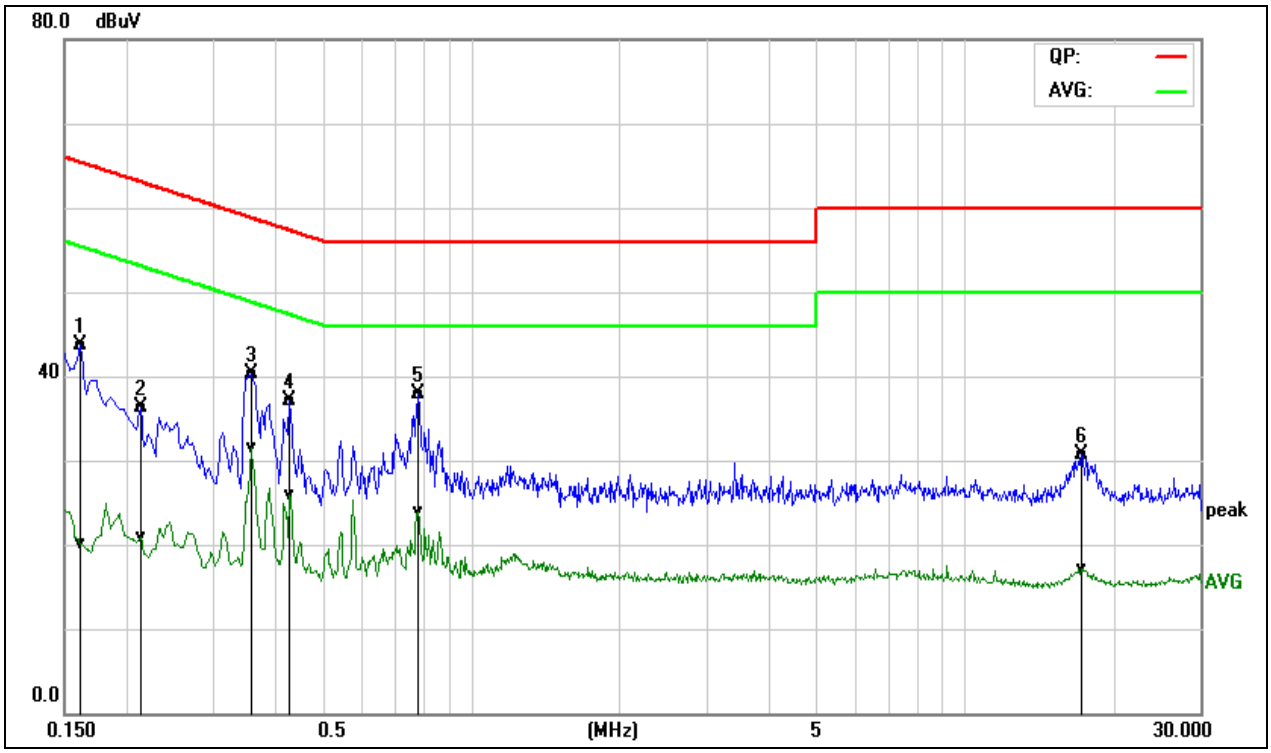
Model No.	AR108A4BKA	**RBW,VBW**	9 kHz
Environmental Conditions	22°C, 45% RH	**Test Mode**	Mode 1
Tested by	Jacksan Luo	**Line**	L1
Test Date	March 20, 2017		



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1819	19.18	3.65	19.59	38.77	23.24	64.39	54.40	-25.62	-31.16	Pass
0.2460	16.01	2.95	19.64	35.65	22.59	61.89	51.89	-26.24	-29.30	Pass
0.3580	20.54	11.46	19.63	40.17	31.09	58.77	48.77	-18.60	-17.68	Pass
0.7780	15.39	2.81	19.76	35.15	22.57	56.00	46.00	-20.85	-23.43	Pass
1.2140	9.49	-0.81	19.66	29.15	18.85	56.00	46.00	-26.85	-27.15	Pass
17.1900	12.14	-1.29	19.92	32.06	18.63	60.00	50.00	-27.94	-31.37	Pass

REMARKS: *L1 = Line One (Live Line)*

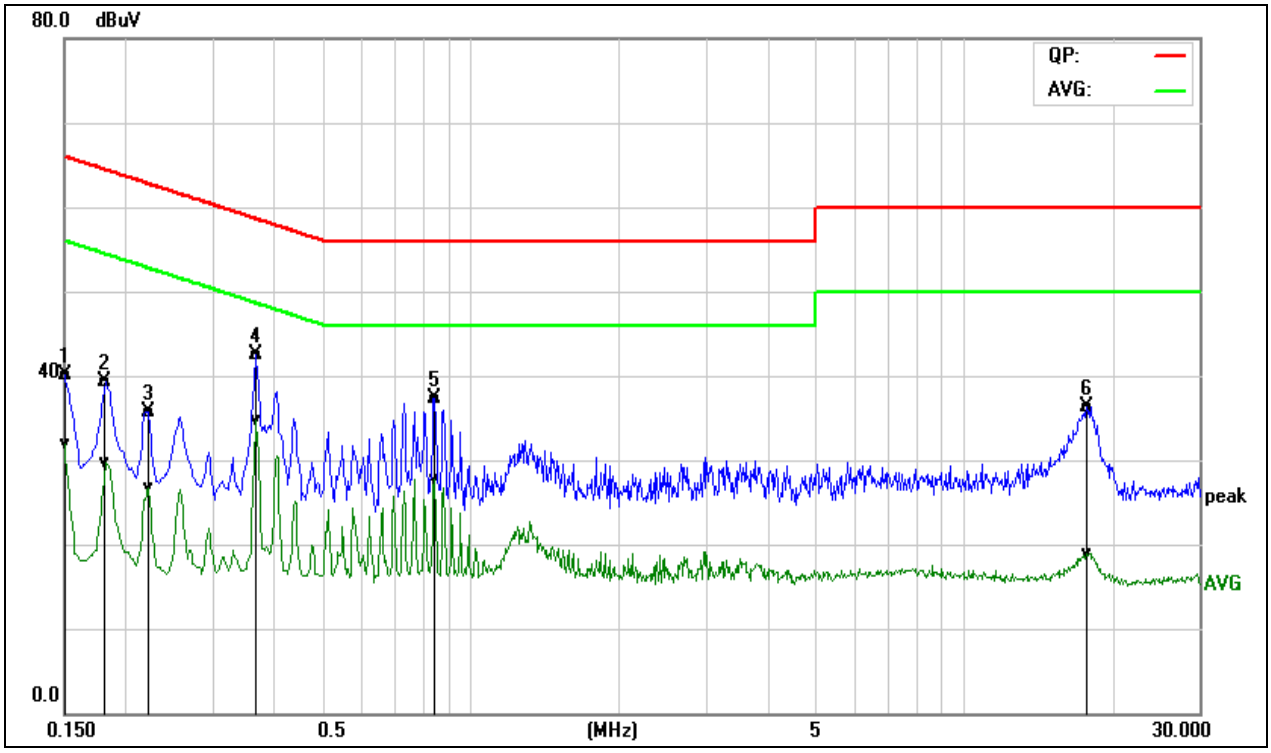
Model No.	AR108A4BKA	**RBW,VBW**	9 kHz
Environmental Conditions	22°C, 45% RH	**Test Mode**	Mode 1
Tested by	Jacksan Luo	**Line**	L2
Test Date	March 20, 2017		



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1620	23.91	0.42	19.72	43.63	20.14	65.36	55.36	-21.73	-35.22	Pass
0.2140	16.56	1.12	19.74	36.30	20.86	63.04	53.05	-26.74	-32.19	Pass
0.3580	20.70	11.73	19.68	40.38	31.41	58.77	48.77	-18.39	-17.36	Pass
0.4300	17.42	6.33	19.65	37.07	25.98	57.25	47.25	-20.18	-21.27	Pass
0.7820	18.15	4.18	19.72	37.87	23.90	56.00	46.00	-18.13	-22.10	Pass
17.2180	10.97	-2.68	19.76	30.73	17.08	60.00	50.00	-29.27	-32.92	Pass

REMARKS: *L2 = Line Two (Neutral Line)*

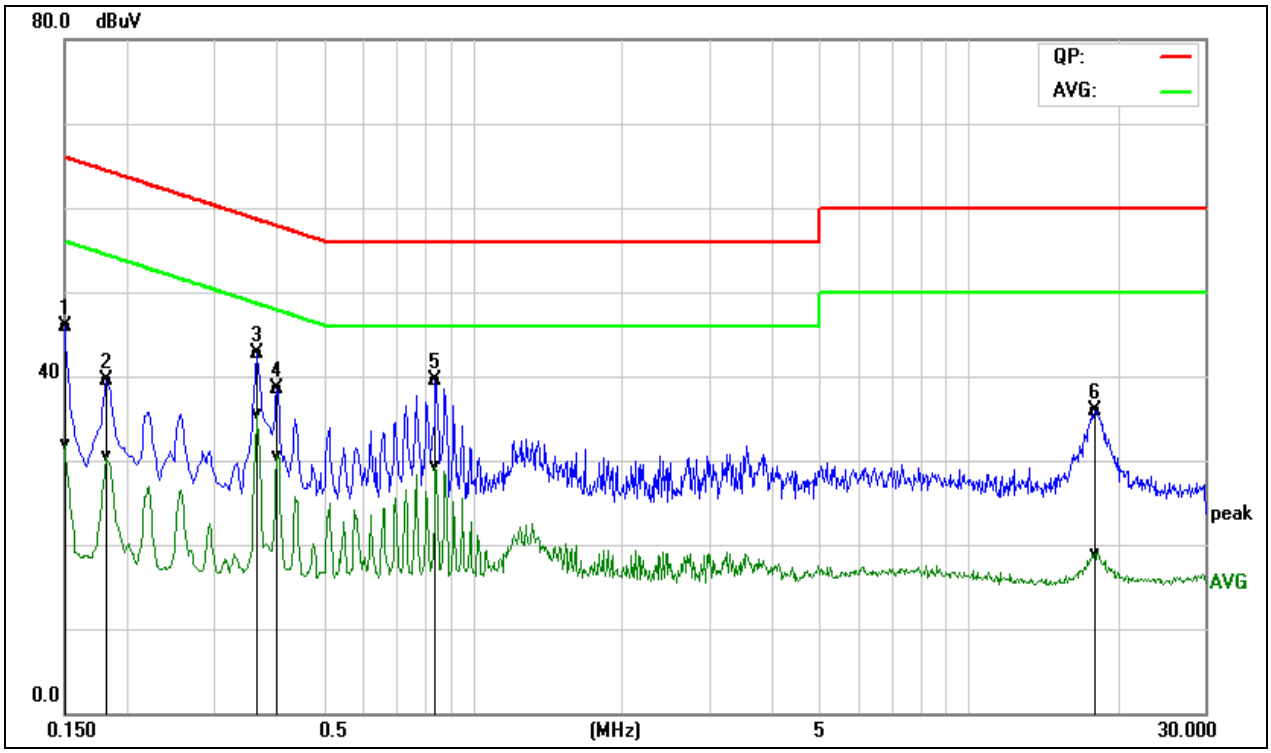
Model No.	AR108A4BKA	**RBW,VBW**	9 kHz
Environmental Conditions	22°C, 45% RH	**Test Mode**	Mode 2
Tested by	Jacksan Luo	**Line**	L1
Test Date	March 20, 2017		



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1500	20.53	12.38	19.52	40.05	31.90	65.99	56.00	-25.94	-24.10	Pass
0.1819	19.68	10.20	19.59	39.27	29.79	64.39	54.40	-25.12	-24.61	Pass
0.2220	16.14	6.99	19.64	35.78	26.63	62.74	52.74	-26.96	-26.11	Pass
0.3660	22.82	14.98	19.63	42.45	34.61	58.59	48.59	-16.14	-13.98	Pass
0.8460	17.63	7.98	19.73	37.36	27.71	56.00	46.00	-18.64	-18.29	Pass
17.7380	16.47	-0.97	19.92	36.39	18.95	60.00	50.00	-23.61	-31.05	Pass

REMARKS: *L1 = Line One (Live Line)*

Model No.	AR108A4BKA	**RBW,VBW**	9 kHz
Environmental Conditions	22°C, 45% RH	**Test Mode**	Mode 2
Tested by	Jacksan Luo	**Line**	L2
Test Date	March 20, 2017		



Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
0.1500	26.11	12.15	19.72	45.83	31.87	65.99	56.00	-20.16	-24.13	Pass
0.1819	19.82	10.70	19.73	39.55	30.43	64.39	54.40	-24.84	-23.97	Pass
0.3660	23.07	15.86	19.67	42.74	35.53	58.59	48.59	-15.85	-13.06	Pass
0.4020	18.84	10.94	19.66	38.50	30.60	57.81	47.81	-19.31	-17.21	Pass
0.8420	19.75	9.48	19.73	39.48	29.21	56.00	46.00	-16.52	-16.79	Pass
17.9740	16.10	-0.85	19.78	35.88	18.93	60.00	50.00	-24.12	-31.07	Pass

REMARKS: *L2 = Line Two (Neutral Line)*